



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



FEB 28 2014

Erin Fanning
Forward Inc Landfill
9999 S Austin Road
Manteca, CA 95336

**Re Revised Proposed Authority to Construct/Certificate of Conformity
District Facility # N-339
Project # N-1123241**

Dear Ms Fanning

Enclosed for your review is the District's revised analysis of an application for an Authority to Construct for the facility identified above which incorporates the comments you submitted in response to the previously proposed Authority to Construct. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This project is for the modification of a landfill to incorporate the requirements of an EPA Consent Decree.

Your amended proposal to the previously proposed Authority to Construct requires a second 45-day EPA comment period. After addressing all comments made during the second 45-day EPA comment period, the District intends to issue the Authority to Construct with a Certificate of Conformity. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Rupl Gill, Permit Services Manager at (209) 557-6400.

Seyed Sadredin

Executive Director/Air Pollution Control Officer

Northern Region

4800 Enterprise Way
Modesto, CA 95356 8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)

1990 E. Gettysburg Avenue
Fresno, CA 93726 0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region

34946 Flyover Court
Bakersfield, CA 93308 9725
Tel: 661 392 5500 FAX: 661 392 5585

Ms Fanning
Page 2

Thank you for your cooperation in this matter

Sincerely,


David Warner
Director of Permit Services

Enclosures

cc Gerardo C Rios, EPA (w/enclosure) via email
Brian Riedel, EPA (w/enclosure) via email
Leslie Bove, SCS Engineers (w/enclosure) via email
Annette Ballatore-Williamson, (w/enclosure) District Counsel
Catherine Redmond, (w/enclosure) Special Advisory Counsel
Morgan Lambert, Director of Compliance
John Cadrett, Northern Region Compliance Manager

San Joaquin Valley Air Pollution Control District
Authority to Construct
Revised Application Review
Modifications to Landfill Permit to Incorporate EPA
Consent Decree Requirements and to Correct the Equipment Description

Facility Name	Forward Inc Landfill	Date	April 12, 2013
		Revised	February 24, 2013
Mailing Address	9999 S Austin Road	Engineer	James Harader
	Manteca, CA 95336	Lead Engineer	Nick Peirce
Contact Person	Erin Fanning		
Telephone	(209) 684-4733		
Application #	N-339-17-13		
Project #	N-1123241		
Deemed Complete	April 25 2013		

I Proposal

Forward Inc Landfill submitted an Authority to Construct application for the following modifications to their current permit for a solid-waste landfill

- 1 Incorporate the requirements of an EPA Consent Decree (attached in Appendix III) into the existing landfill permit
- 2 Currently the facility is operating the landfill pursuant to the EPA consent Decree and the requirements of Authority to Construct N-339-17-10, which identifies a 2 000 CFM flare a 3,400 CFM flare, and a 300 CFM carbon adsorption system as the control devices for the landfill gas collection system Per LandGem modeling performed for District Project N-1062444, the maximum landfill gas generation rate was expected not to exceed 5 400 CFM Authority to Construct N-339-17-10 was written such that the two flares could process all 5 400 CFM of the landfill gas generated, while allowing the facility the option to divert up to 300 CFM of that landfill gas from the flares to a proposed carbon adsorption system The facility has installed and is currently operating a 2,000 CFM flare and a 3,400 CFM flare however the facility never installed the 300 CFM carbon adsorption system and they state that they no longer plan to install that system Therefore, this permitting action will remove the 300 CFM carbon adsorption system from the equipment description along with the associated permit requirements

Pursuant to District FYI 111, a revision to the equipment description requires an Authority to Construct and is subject to New Source Review Therefore, this project is subject to District Rule 2201 requirements Note, this project does not authorize the facility to use the LandGem monitoring system in lieu of draeger tubes

The removal of the carbon adsorption system from the equipment description is not a physical change to the current control system since it was never installed. Furthermore, this proposal does not constitute a change in the method of operation since the proposal is to route all the landfill gas to the two flares, which was already allowed in Authority to Construct N-339-17-10. Thus, this project is not a physical change to, or change in method of operation of the landfill and landfill control equipment.

The evaluation for this project was originally sent to US EPA and the facility for comments on August 27, 2013. Comments were received from the facility (See Appendix VII). Since the facility's comments include a request to increase the temperature limits for several wells within this project and the revised temperature limits must be approved by US EPA, this project will be submitted for an additional 45-day EPA review prior to issuance of the Authority to Construct permits.

Title V

Forward Inc Landfill currently has a Title V permit. This modification can be classified as a Title V Minor Modification pursuant to District Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Forward Inc Landfill must apply to administratively amend their Title V Operating Permit to include the requirements of the ATCs issued with this project.

II Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4311	Flares (6/18/09)
Rule 4642	Solid Waste Disposal Sites (4/16/1998)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice
40 CFR Part 64	Compliance Assurance Monitoring
Public Resources Code 21000-21177	California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387	CEQA Guidelines
US EPA Consent Decree Case No. 2:11-cv-00590 EFB	

III Project Location

This landfill is located at 9999 S Austin Road in Manteca, CA and the District has confirmed that the landfill is not located within 1,000 feet of a K-12 School

IV Process Description

This landfill site is designed to receive domestic waste, municipal waste, combustion ash industrial non-hazardous waste, agricultural waste, and construction & demolition wastes. The site is essentially a cell/trench type landfill, in which the waste is spread out in excavated soil trenches. In order to prevent subsurface gas migration and leachate (i.e. water that has passed through the landfill) leakage, the trenches are lined with a combination of clay and an impermeable synthetic (i.e. high density polyethylene) liner. Collected waste that has been spread out in the cell trenches is compacted using heavy machinery (including bulldozers and planers) and covered with at least six inches of soil, on a daily basis. The storage capacity of the facility is expected to be exhausted in the near future. At the time of closure, the site will be fully sealed off by a relatively impermeable clay and topsoil layer. Forward Landfill provided LandGem modeling data for District Project N-1062444 demonstrating that the maximum collection system flow rate expected during the life of the landfill is 5,400 CFM. The gas collection system operates 24 hours per day, 365 days per year.

Ameresco Forward, LLC, operates two landfill gas-fired IC engines and a siloxane removal system that will process some of the gas generated by the landfill, however, the Ameresco Forward LLC facility was determined to be a separate stationary source in District Project N-1110808 and the units operated by Ameresco will not be considered in this evaluation.

V Equipment Listing

Pre-Project Equipment Description

The following equipment description was obtained from the engineering evaluation for District Project N-1062444:

N-339-17-10 13.8 MILLION CUBIC YARD CAPACITY (218 ACRES) LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM CONTROLLED BY A 2000 SCFM (EQUIVALENT TO 48.0 MMBTU/HR) ENCLOSED FLARE AND CARBON ADSORPTION SYSTEM (CAS), AND A 3400 SCFM (EQUIVALENT TO 102 MMBTU/HR) PERRENIAL ENERGY MODEL GHS-301 LFG-FIRED ENCLOSED FLARE WITH LPG PILOT

Post-Project Equipment Description

N-339-17-13 39 0 MILLION CUBIC METER CAPACITY (354 5 ACRES)¹ LANDFILL WITH A LANDFILL GAS COLLECTION SYSTEM CONTROLLED BY A 2,000 SCFM (EQUIVALENT TO 60 MMBTU/HR²) ENCLOSED LANDFILL GAS-FIRED FLARE AND A 3,400 SCFM (EQUIVALENT TO 102 MMBTU/HR) PERRENIAL ENERGY MODEL GHS-301 ENCLOSED LANDFILL GAS-FIRED FLARE WITH AN LPG-FIRED PILOT

VI Emission Control Technology Evaluation

Landfills emit VOC air contaminants as the result of refuse being broken down. These VOC emissions are significant and must be controlled as they are ozone precursors. LFG extraction wells collect these emissions and send them to a control device, in this case two flares, where they are combusted. The flares serving the landfill gas collection system reduce collected VOC's by at least 98%.

Additionally, uncontrolled PM10 emissions are emitted by the earthmoving activities that take place at the landfill.

VII General Calculations

A Assumptions

- The landfill gas (LFG) heating value is 500 Btu/scf, assuming 50% of the volume of landfill gas is methane (per District Project N-1062444)
- This project will not affect the heat input rating and operating schedule for the flares that was permitted by Authority to Construct N-339-17-10
- The quantity of landfill gas flared will not exceed 5,400 CFM (District Project N-1062444)
- The molecular weight of hexane is 86.18 lb/lb-mol (AP-42 Section 2.4.4.2)
- The standard molar volume of gas is 379.5 ft³/lb-mol
- The reduced sulfur concentration of the landfill gas is 46.9 ppmv (AP-42 Section 2.4)

¹ The landfill capacity and area listed on Authority to Construct N-339-17-10 was determined to be incorrect. This permit includes two landfills that were merged. When merged, the permit was not updated properly to include the merged capacity of the landfill. Therefore, the capacity must be corrected on this permit. The total capacity and area of the Forward Inc Landfill is 39.0 million cubic meters (354.5 acres) per their Cal Recycle permit. The capacity and area have been corrected in the post project equipment description. These values will be used for both pre project and post project landfill cover emission calculations. It should be noted that this correction is not due to an expansion of the landfill.

² The equivalent heat input for the 2,000 SCFM flare listed on Authority to Construct N-339-17-10 was determined to be incorrect. The gas flow rate was increased in the permitting action that generated Authority to Construct N-339-17-10; however, the heat input rating listed in the equipment description for Authority to Construct N-339-17-10 was not adjusted to reflect the higher gas flow rate. The landfill gas at this site has a higher heating content of 500 Btu/scf. Thus, the correct heat input for the 2,000 SCFM flare is

Existing Flare Rating = 2,000 SCFM x 60 min/hr x 500 Btu/scf x MMBtu/10⁶ Btu = 60 MMBtu/hr

- The VOC destruction efficiency of each flare is at least 98% (District Project N-1062444)
- The VOC adsorption efficiency of the previously proposed but never installed carbon adsorption system was at least 98% (manufacturer)
- 100% of NMOC emissions are VOC's
- The landfill gas capture efficiency is 85% (AP-42 Section 2.4.4)
- The maximum disposal rate is 2 139 312 tons per year (District Project N-1062444)
- The landfill area is 354.5 acres (Cal Recycle Permit)
- The intermediate and final cover soil depth of the landfill is 4 feet (District Project N-1062444)
- The soil density is 120 lb/cubic foot (District Project N-1062444)
- All other assumptions will be stated as they are made

B Emission Factors

1 Pre-Project Emission Factors

2,000 CFM Flare

Pollutant	Emission Factors (EF1) and/or Emission Rates	Source
NO _x	0.05 lb-NO _x /MMBtu	District Project N 1062444
SO _x	0.0215 lb-SO _x /MMBtu	District Project N-1062444
PM ₁₀	0.034 lb-PM ₁₀ /MMBtu	District Project N-1062444
CO	0.2 lb-CO/MMBtu	District Project N-1062444
VOC	0.0113 lb-VOC/MMBtu (equivalent to 20 ppmvd VOC as Hexane @ 3% O ₂)	District Project N 1062444

3,400 CFM Flare

Pollutant	Emission Factors (EF1) and/or Emission Rates	Source
NO _x	0.05 lb/MMBtu	District Project N-1062444
SO _x	0.0215 lb SO _x /MMBtu	District Project N-1062444
PM ₁₀	(0.001 lb-PM ₁₀ /hr)/scfm-methane	District Project N-1062444
CO	0.2 lb/MMBtu	District Project N-1062444
VOC	0.0113 lb/MMBtu (equivalent to 20 ppmvd VOC as Hexane @ 3% O ₂)	District Project N-1062444

300 CFM Carbon Adsorption System

Per the application for District Project N-1062444, the VOC emission factor for the carbon adsorption system is equivalent to the VOC emission factor for the flares. The emission factor for the carbon adsorption system is calculated below, on a per SCF of gas processed basis.

$$EF1 \text{ VOC} = 0.0113 \text{ lb/MMBtu} \times 500 \text{ MMBtu/MMscf} = 5.65 \text{ lb-VOC/MMscf}$$

Fugitive Landfill VOC Emissions

Results from the LandGem modeling and the estimated capture efficiency of the gas collection system will be used to estimate fugitive landfill VOC emissions.

PM10 Emissions from Earthmoving Activities

PM10 emissions are calculated according to US EPA's AP-42 equation for material handling and drop-equation in Section 13.2.4.

$$E = k(0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ lb / ton}$$

Where k is equal to 1 (worst-case particle size), U is equal to 15 mph (worst-case for SJV wind patterns), and M is equal to 3% (driest the soil would be during summer months per District Project N-1062444). Inputting these values into the above equation yields an emission factor of 0.008 lb PM10/ton of soil moved.

2 Post-Project Emission Factors

2,000 CFM Flare

There are no proposed changes to the emission factors. Thus, the post-project emission factors for this flare are identical to the pre-project emission factors.

Pollutant	Emission Factors (EF2) and/or Emission Rates
NO _x	0.05 lb NO _x /MMBtu
SO _x	0.0215 lb-SO _x /MMBtu
PM ₁₀	0.034 lb-PM10/MMBtu
CO	0.2 lb-CO/MMBtu
VOC	0.0113 lb-VOC/MMBtu (equivalent to 20 ppmvd VOC as Hexane @ 3% O ₂)

3,400 CFM Flare

There are no proposed changes to the emission factors. Thus, the post-project emission factors for this flare are identical to the pre-project emission factors.

Pollutant	Emission Factors (EF2) and/or Emission Rates
NO _x	0.05 lb/MMBtu
SO _x	0.0215 lb-SO _x /MMBtu
PM ₁₀	0.01 lb PM ₁₀ /scfh-methane
CO	0.2 lb/MMBtu
VOC	0.0113 lb/MMBtu (equivalent to 20 ppmvd VOC as Hexane @ 3% O ₂)

300 CFM Carbon Adsorption System

This system will not be installed. Therefore, post-project emission factors are not necessary.

Fugitive Landfill VOC Emissions

There is no proposed change to the emission factor for fugitive emissions. Therefore, post-project fugitive emissions will continue to be based on the 1,000 ppmv limit listed in the pre-project emission factors.

PM₁₀ Emissions from Earthmoving Activities

There is no proposed change to the earthmoving emission factor of 0.008 lb-PM₁₀/ton.

C Calculations

1 Pre-Project Potential to Emit (PE1)

2,000 CFM Flare

The heat input for this flare was determined to be 60 MMBtu/hr. The following formulas will be used to calculate daily and annual pre-project emissions from this flare:

$$PE1_{\text{Daily}} = 60 \text{ MMBtu/hr} \times 24 \text{ hr/day} \times EF \text{ (lb/MMBtu)}$$

$$PE1_{\text{Annual}} = 60 \text{ MMBtu/day} \times 365 \text{ days/year} \times EF \text{ (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	PE1 (lb/day)	PE1 (lb/year)
NOx	0.05	72.0	26,280
SOx	0.0215	31.0	11,300
PM ₁₀	0.034	49.0	17,870
CO	0.2	288.0	105,120
VOC	0.0113	16.3	5,939

3,400 CFM Flare

The heat input for this flare was determined to be 102 MMBtu/hr. The following formulas will be used to calculate daily and annual pre-project emissions from this flare, except for PM₁₀.

$$PE1_{\text{Daily}} = 102 \text{ MMBtu/hr} \times 24 \text{ hr/day} \times EF \text{ (lb/MMBtu)}$$

$$PE1_{\text{Annual}} = 102 \text{ MMBtu/day} \times 365 \text{ days/year} \times EF \text{ (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	PE1 (lb/day)	PE1 (lb/year)
NOx	0.05	122.4	44,676
SOx	0.0215	52.6	19,211
CO	0.2	489.6	178,704
VOC	0.0113	27.7	10,097

Particulate matter emissions from the flare are based on an emission factor of

$$EF1 = (0.001 \text{ lb-PM}_{10}/\text{hr})/\text{scfm-methane}$$

50% by volume of the landfill gas is assumed to be methane. PM₁₀ emissions from this flare are calculated below.

$$PE1 \text{ PM}_{10} = 3,400 \text{ scfm-landfill gas} \times 0.5 \text{ scf methane/1 scfm landfill gas} \\ \times 0.001 \text{ lb-PM}_{10}/\text{hr}/\text{scfm-methane} \times 24 \text{ hr/day}$$

$$PE1 \text{ PM}_{10} = 40.8 \text{ lb/day}$$

$$PE1 \text{ PM}_{10} = 40.8 \text{ lb/day} \times 365 \text{ days/year}$$

$$PE1 \text{ PM}_{10} = 14,892 \text{ lb-PM}_{10}/\text{year}$$

300 CFM Carbon Adsorption System

This system is designed to process a maximum of 300 CFM of landfill gas.

$$PE1 = 300 \text{ CFM-landfill gas} \times 1440 \text{ min/day} \times 5.65 \text{ lb-VOC}/10^6 \text{ CF-gas}$$

$$PE1 = 2.4 \text{ lb-VOC/day}$$

$$PE1 = 2.4 \text{ lb-VOC/day} \times 365 \text{ days/year}$$

$$PE1 = 876 \text{ lb-VOC/year}$$

Fugitive Landfill VOC Emissions

Pursuant to the LandGem model results from District Project N-1062444, the Non-Methane Organic Compound (NMOC) generation rate is 89 tons/year during the year with highest landfill gas generation rate (5,400 CFM)

Fugitive VOC emissions are calculated below, based on the NMOC generation rate and the capture efficiency of the landfill gas collection system

$$\begin{aligned} PE1_{\text{Fugitive}} &= 89 \text{ tons-NMOC/year} \times (1-0.85) \times 1 \text{ lb-VOC/lb-NMOC} \times 2000 \text{ lb/ton} \\ PE1_{\text{Fugitive}} &= 26,700 \text{ lb-VOC/year} \end{aligned}$$

Daily emissions will be estimated assuming an even distribution of the annual VOC emission rate over the 365-day operating period

$$PE1 = 26,700 \text{ lb-VOC/year} \div 365 \text{ days/year} = 73.2 \text{ lb-VOC/day}$$

PM10 Emissions from Earthmoving Activities

The landfill has an area of 354.5 acres, or equivalent to 15,442,020 square feet. Assuming a soil depth of 4 feet including intermediate and final cover, the volume of soil moved per year (assuming the entire landfill is covered), would be 61,768,080 cubic feet of soil. Assuming a soil density of 120 lb/cubic foot

$$\begin{aligned} \text{Soil Throughput} &= 61,768,080 \text{ cubic feet of soil/year} \times 120 \text{ lb/cubic foot} \div 2000 \text{ lb/ton} \\ \text{Soil Throughput} &= 3,706,085 \text{ tons/year} \end{aligned}$$

$$PE1 = 3,706,085 \text{ tons/year} \times 0.008 \text{ lb-PM10/ton} = 29,649 \text{ lb-PM10/year}$$

Daily emissions will be estimated assuming an even distribution of the earthmoving activities over the 365-day operating period

$$PE1 = 29,649 \text{ lb-PM10/year} \div 365 \text{ days/year} = 81.2 \text{ lb-PM10/day}$$

Pre-Project Landfill Emissions Summary

Pre-Project Daily Landfill Emission Summary					
Operation	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	CO (lb/day)	VOC (lb/day)
2,000 CFM Flare	72 0	31 0	49 0	288 0	16 3
3,400 CFM Flare	122 4	52 6	40 8	489 6	27 7
Carbon Adsorption System ³	0 0	0 0	0 0	0 0	0 0
Fugitive Landfill Emissions	0 0	0 0	0 0	0 0	73 2
Earthmoving Activities	0 0	0 0	81 2	0 0	0 0
Total	194 4	83 6	171 0	777 6	116 7

Pre-Project Annual Landfill Emission Summary					
Operation	NOx (lb/year)	SOx (lb/year)	PM10 (lb/year)	CO (lb/year)	VOC (lb/year)
2,000 CFM Flare	26,280	11 300	17 870	105,120	5,939
3 400 CFM Flare	44 676	19 211	14,892	178,704	10,097
Carbon Adsorption System ⁴	0	0	0	0	0
Fugitive Landfill Emissions	0	0	0	0	26 700
Earthmoving Activities	0	0	29 649	0	0
Total	70,956	30,511	62,411	283,824	42,736

2 Post Project Potential to Emit (PE2)

2,000 CFM Flare

The applicant is not requesting any changes to the flare emissions. Thus, PE2 is equal to PE1

Pollutant	PE2 (lb/day)	PE2 (lb/year)
NOx	72 0	26,280
SOx	31 0	11,300
PM ₁₀	49 0	17,870
CO	288 0	105 120
VOC	16 3	5 939

³ Pre-project up to 300 CFM could be diverted to a proposed carbon adsorption system however the emission rate for a flare processing the 300 CFM of gas would be equivalent or higher for all pollutants. Therefore worst case emissions occur when the flares process the full quantity of landfill gas and the carbon adsorption system is not used. Therefore no potential to emit is attributed to the carbon adsorption system in the emissions summary.

⁴ Pre project up to 300 CFM could be diverted to a proposed carbon adsorption system however the emission rate for a flare processing the 300 CFM of gas would be equivalent or higher for all pollutants. Therefore worst case emissions occur when the flares process the full quantity of landfill gas and the carbon adsorption system is not used. Therefore no potential to emit is attributed to the carbon adsorption system in the emissions summary.

3,400 CFM Flare

The applicant is not proposing any changes to the flare emissions. Thus, PE2 is equal to PE1

Pollutant	PE2 (lb/day)	PE2 (lb/year)
NOx	122.4	44,676
SOx	52.6	19,211
PM10	40.8	14,892
CO	489.6	178,704
VOC	27.7	10,097

300 CFM Carbon Adsorption System

This system will not be installed, thus, PE2 is equal to zero

Fugitive Landfill VOC Emissions

The applicant is not proposing any changes, thus PE2 is equal to PE1

PE2 = 73.2 lb-VOC/day

PE2 = 26,700 lb-VOC/year

PM10 Emissions from Earthmoving Activities

The applicant is not proposing any changes, thus PE2 is equal to PE1

PE2 = 81.2 lb-PM10/day

PE2 = 29,649 lb-PM10/year

Post-Project Landfill Emissions Summary

Post-Project Daily Landfill Emission Summary					
Operation	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	CO (lb/day)	VOC (lb/day)
2,000 CFM Flare	72.0	31.0	49.0	288.0	16.3
3,400 CFM Flare	122.4	52.6	40.8	489.6	27.7
Fugitive Landfill Emissions	0.0	0.0	0.0	0.0	73.2
Earthmoving Activities	0.0	0.0	81.2	0.0	0.0
Total	194.4	83.6	171.0	777.6	116.7

Post-Project Annual Landfill Emission Summary					
Operation	NO_x (lb/year)	SO_x (lb/year)	PM₁₀ (lb/year)	CO (lb/year)	VOC (lb/year)
2,000 CFM Flare	26,280	11,300	17,870	105,120	5,939
3,400 CFM Flare	44,676	19,211	14,892	178,704	10,097
Fugitive Landfill Emissions	0	0	0	0	26,700
Earthmoving Activities	0	0	29,649	0	0
Total	70,956	30,511	62,411	283,824	42,736

3 Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid ATCs or PTOs at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. With the exception of the emission rates for ATC N-339-17-10, the emission rates listed in the below table were obtained from District project N-1040337.

Pre-Project Stationary Source Potential to Emit (lb/year)					
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC
PTO N-339-1-2	0	0	7,300	0	0
PTO N-339-9-2	0	0	0	0	292
PTO N-339-15-2	0	0	0	0	183
PTO N-339-16-2	0	0	0	0	3,614
ATC N-339-17-10	70,956	30,511	62,411	283,824	42,736
SSPE1	70,956	30,511	69,711	283,824	46,825

4 Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Post-Project Stationary Source Potential to Emit (lb/year)					
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC
PTO N-339-1-2	0	0	7,300	0	0
PTO N-339-9-2	0	0	0	0	292
PTO N-339-15-2	0	0	0	0	183
PTO N-339-16-2	0	0	0	0	3,614
ATC N-339-17-13	70,956	30,511	62,411	283,824	42,736
SSPE2	70,956	30,511	69,711	283,824	46,825

5 Major Source Determination

District Rule 2201 Major Source Determination

Pursuant to Section 3 24 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3 24 2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

Pursuant to section 3 24 1 fugitive emissions are only included for determining Major Source status if the source of those fugitive emissions are identified in the Major Source definition in 40 CFR Part 70 2. None of the units at this source are subject to an NSPS or NESHAPS that was promulgated on or prior to August 7, 1980 and landfills are not one of the sources of fugitives listed in 40 CFR Part 70 2. Therefore, fugitive VOC emissions from the landfill are excluded in the below Major Source determination. Furthermore, SSPE1 and SSPE2 are equal. Additionally, PM emissions from earthmoving are considered fugitive and will be excluded.

Major Source Thresholds			
Pollutant	SSPE2 w/o fugitives (lb/year)	Major Source Thresholds lb/year	Major Source?
NOx	70,956	20,000	Yes
SOx	30,511	140,000	No
PM ₁₀	40,052	140,000	No
CO	283,824	200,000	Yes
VOC	20,125	20,000	Yes

Additionally, a major source of PM_{2.5} is defined as one with the potential to emit 100 tons/yr (200,000 lb/yr) or more of PM_{2.5}. Since PM_{2.5} is a subset of PM₁₀, it is evident that SSPE2 for PM_{2.5} emissions is less than or equal to 100 tons/yr, thus, this facility is not a major source for PM_{2.5}.

District Rule 2410 Major Source Determination

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore, the following PSD Major Source thresholds are applicable. The pre-project GHG emission calculations are shown in Appendix IV.

PSD Major Source Determination (tons/year)							
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀	CO _{2e}
Facility PE before Project	36	10 1	15	142	34 9	34 9	0 2 ⁵
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)	No	No	No	No	No	No	No

As shown above, the facility is not an existing Major Source for PSD

6 Baseline Emissions (BE)

The baseline emission (BE) calculations are performed pollutant by pollutant to determine the amount of offsets required, where necessary, when the SSPE1 is greater than the offset threshold

BE = Pre-project Potential to Emit for

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit located at a Major Source or
- Any Clean Emissions Unit, Located at a Major Source

otherwise,

BE = Historic Actual Emissions (HAE) calculated pursuant to Section 3 22

Baseline Emissions for SO_x and PM₁₀

This facility is not a Major Source for SO_x and PM₁₀ emissions Therefore, the baseline emissions for these pollutants are equal to the pre-project potential to emit

$$BE_{SO_x} = PE1_{SO_x}$$

$$BE_{PM_{10}} = PE1_{PM_{10}}$$

Baseline Emissions for NO_x, CO, and VOC

This facility is a Major Source for NO_x, CO, and VOC emissions District Rule 2201 states that an emission unit is clean if it meets one of the following criteria

- 1 The unit is equipped with an emission control technology with a minimum control efficiency of at least 95% (or at least 85% for lean burn, internal combustion engines), or

⁵ EPA issued a deferral for CO₂ emissions from bioenergy and other biogenic sources under the Prevention of Significant Deterioration (PSD) and Title V programs As a result biogenic CO₂ emissions from the landfill are not included for applicability purposes under the PSD and Title V programs

- 2 The unit is equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during five years immediately prior to the submission of the complete application

NO_x and CO emissions are generated from the flares, which are an emission control technology. A clean unit determination is not required for emission control devices. The flares control VOC emissions from the landfill gas collection system and are rated at a destruction efficiency of 98%. Therefore, the landfill meets the criteria of item #1 above and is clean for VOC emissions. Thus, the baseline emissions for these pollutants are equal to the pre-project potential to emit.

$$BE_{NOx} = PE1_{NOx}$$

$$BE_{CO} = PE1_{CO}$$

$$BE_{VOC} = PE1_{VOC}$$

7 SB288 Modification

An SB 288 Major Modification is defined in 40 CFR Part 51.165 (in effect 12/19/02) as *"any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."*

As stated earlier in the project description, this project will not result in a physical change to the landfill, nor will the project result in a change in the method of operation of the landfill. Therefore, this project cannot trigger an SB288 Modification.

8 Federal Major Modification

A Federal Major Modification is defined in 40 CFR Part 51.165 (currently in effect) as

Major modification means any physical change in or change in the method of operation of a major stationary source that would result in

(1) A significant emissions increase of a regulated NSR pollutant, and

(2) A significant net emissions increase of that pollutant from the major stationary source

As stated earlier in the project description, this project will not result in a physical change to the landfill, nor will the project result in a change in the method of operation of the landfill. Therefore, this project cannot trigger a Federal Major Modification.

9 Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination Calculations

The intent of this Rule is to incorporate the federal PSD rule requirements of Title 40 Code of Federal Regulations (40 CFR) Part 52.21 into the District's Rules and Regulations by incorporating the federal requirements by reference. The prevention of significant deterioration (PSD) program is a construction permitting program for new major stationary sources and major modifications to existing major stationary sources.

located in areas classified as attainment or in areas that are unclassifiable for any criteria air pollutant

Section 40 states that an owner or operator must obtain a PSD permit pursuant to this Rule before beginning actual construction of a new major stationary source, a major modification, or a plantwide applicability limitation (PAL) major modification, as defined in 40 CFR 52.21(b)

As discussed earlier, Forward Inc Landfill is an existing PSD Major Source. Pursuant to Section 52.21(2)(i), a major modification at an existing stationary source means any physical change in or change in the method of operation of a major stationary source that would result in a significant emissions increase (as defined in paragraph (b)(40) of this section) of a regulated NSR pollutant (as defined in paragraph (b)(50) of this section), and a significant net emissions increase of that pollutant from the major stationary source.

As stated earlier in this evaluation, the changes proposed by this project will not result in physical changes to the equipment or result in changes in the method of operation of the landfill. Therefore, by definition, this project cannot trigger a major modification under PSD and the requirements of this rule are not applicable.

10 Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix V.

VIII Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A Best Available Control Technology (BACT)

1 BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*

- a Any new emissions unit with a potential to emit exceeding two pounds per day,
- b The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c Modifications to an existing emissions unit with a valid Permit to Operate resulting in an APE exceeding two pounds per day, and/or
- d Any new or modified emissions unit, in a stationary source project which results in a SB288 or Federal Major Modification

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a New emissions units with PE exceeding 2 0 lb/day

The applicant is not proposing any new emission units

b The relocation of a unit from one stationary to another stationary source

The applicant is not proposing to relocate any emissions units to another stationary source

c Modifications to an existing emissions unit with an Adjusted Increase in Potential to Emit (AIPE) exceeding 2 0 pounds per day

Modifications to existing emission units trigger BACT if the modification results in an Adjusted Increase in Potential to Emit (AIPE) exceeding 2 0 pounds per day The following formulas are used to calculate the AIPE

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

$$\text{where, HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

PE1 = Pre-Project Potential to Emit (lb/day)

EF1 = Pre-Project Emissions Factor

PE2 = Post-Project Potential to Emit (lb/day)

EF2 = Post-Project Emissions Factor

This project will not result in a physical modification to any of the emission units Furthermore, the applicant is not proposing a change to the potential to emit and is not proposing any changes to the emission factors Thus AIPE will equal zero for all pollutants

d Any new or modified emissions unit, in a stationary source project, which results in a SB288 or Federal Major Modification

As shown in section VII C 7, this project does not result in a SB288 or Federal Major Modification

In summary, BACT is not triggered by this proposal

B Offsets

1 Offset Applicability

Pursuant to Section 4 5 3, offset requirements shall be triggered on a pollutant-by-pollutant basis Unless exempted pursuant to Section 4 6 offset requirements shall be triggered if the post-project SSPE2 equals or exceeds the following offset threshold levels

Offsets Applicability			
Pollutant	SSPE2 (lb/yr)	Offset Threshold (lb/yr)	Offsets Triggered?
NO _x	70,956	20,000	Yes
SO _x	30,511	54,750	No
PM ₁₀	69,711	29 200	Yes
CO	283,824	200 000	Yes
VOC	46,825	20,000	Yes

2 Quantity of Offsets Required

As demonstrated above, offsets are triggered for NO_x PM₁₀ CO, and VOC. The following equation will be utilized to determine the quantity of offsets required for this project:

$$\text{Quantity of Offsets Required} = \frac{[\sum(\text{PE2} - \text{BE}) + \text{Cargo Carrier Emissions}]}{\text{x Distance Offset Ratio (DOR)}}$$

As described earlier in this evaluation, the baseline emissions for NO_x, PM₁₀, CO and VOC are each equal to their respective pre-project potential to emit (PE1). Additionally, there are no cargo carrier emissions associated with this project. Thus, the equation can be reduced to:

$$\text{Quantity of Offsets Required} = [\sum(\text{PE2} - \text{PE1})] \times \text{DOR}$$

The following table shows the results of the quantity of offset required calculations for this project:

Pollutant	PE2 (lb/year)	PE1 (lb/year)	Quantity of Offsets Required (lb/year)
NO _x	70 956	70 956	0
PM ₁₀	62 411	62,411	0
CO	283,824	283,824	0
VOC	42 736	42 736	0

As demonstrated in the above table, offsets are not required for this project.

C Public Notification

1 Applicability

Public noticing is required for

- a Any new Major Source, which is a new facility that is also a Major Source,
- b Major Modifications,
- c Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d Any project which results in the offset thresholds being surpassed, and/or
- e Any project with an SSPE of greater than 20,000 lb/year for any pollutant

a New Major Source

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

b Major Modification

As demonstrated in VII C 7, this project is not a Major Modification (SB288 or Federal).

c PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units proposed in this project. Therefore, public noticing is not required for this purpose.

d Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Offset Threshold Surpassed?
NO _x	70,956	70,956	20,000 lb/year	No
SO _x	30,511	30,511	54,750 lb/year	No
PM ₁₀	69,711	69,711	29,200 lb/year	No
CO	283,824	283,824	200,000 lb/year	No
VOC	46,825	46,825	20,000 lb/year	No

While facility emissions are already above the offset threshold for some pollutants, facility emissions are either decreasing or remaining the same. Thus, an offset threshold will not be surpassed.

e SSIPe > 20,000 lb/year

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPe) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPe is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. $SSIPe = SSPE2 - SSPE1$. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPe is compared to the SSIPe Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPe] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPe (lb/year)	SSIPe Public Notice Threshold	Public Notice Required?
NO _x	70,956	70,956	0	20,000 lb/year	No
SO _x	30,511	30,511	0	20,000 lb/year	No
PM ₁₀	69,711	69,711	0	20,000 lb/year	No
CO	283,824	283,824	0	20,000 lb/year	No
VOC	46,825	46,825	0	20,000 lb/year	No

As demonstrated in the table above, a public notice is not required for SSIPe greater than 20,000 lb/year.

2 Public Notice Action

As discussed above, public noticing is not required for this project.

D Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.16 to restrict a unit's maximum daily emissions to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.16.1 and 3.16.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

The following conditions will be included on the Authority to Construct permit:

- *The landfill gas collected by the landfill gas collection system shall be controlled by at least one of the following devices: 1) The 60 MMBtu/hr flare, 2) the 102 MMBtu/hr flare and/or 3) The siloxane removal system and one of the IC engines permitted under Facility ID N-8573. Each device shall be operated at all times when the collected gas is routed to it. [District Rule 2201 and 40 CFR 60.752(b)(2)(iii)(B), 40 CFR 60.753(f), and 40 CFR 63 Subpart AAAA]*
- *The influent landfill gas flow rate to the 60 MMBtu/hr flare shall not exceed 2,000 SCFM (corrected to 50% methane) [District Rule 2201]*

- *The influent landfill gas flow rate to the 102 MMBtu/hr flare shall not exceed 3 400 SCFM (corrected to 50% methane) [District Rule 2201]*
- *The VOC destruction efficiency for the 60 MMBtu/hr flare shall be at least 98% by weight or the maximum non-methane organic compound NMOC emissions from the flare shall not exceed 20 ppmv @ 3% O₂ (as hexane) [District Rule 2201, 40 CFR 60 752(b)(2)(iii)(B) and 40 CFR 63 Subpart AAAA]*
- *The VOC destruction efficiency for the 102 MMBtu/hr flare shall be at least 98% by weight or the maximum non-methane organic compound NMOC emissions from the flare shall not exceed 20 ppmv @ 3% O₂ (as hexane) [District Rule 2201, 40 CFR 60 752(b)(2)(iii)(B) and 40 CFR 63 Subpart AAAA]*
- *Emissions from the 60 MMBtu/hr flare shall not exceed any of the following limits 0 05 lb-NOx/MMBtu, 0 0215 lb-SOx/MMBtu, 0 034 lb-PM10/MMBtu, 0 2 lb-CO/MMBtu, and 0 0113 lb-VOC/MMBtu (equivalent to 20 ppmvd VOC as Hexane @ 3% O₂) [District Rule 2201]*
- *Emissions from the 102 MMBtu/hr flare shall not exceed any of the following limits 0 05 lb-NOx/MMBtu, 0 0215 lb-SOx/MMBtu, (0 001 lb-PM10/hr)/scfm-methane, 0 2 lb-CO/MMBtu, and 0 0113 lb-VOC/MMBtu (equivalent to 20 ppmvd VOC as Hexane @ 3% O₂) [District Rule 2201]*
- *The volume of soil used for intermediate and final cover shall not exceed 61,768,080 cubic feet [District Rule 2201]*
- *PM10 emissions from the placement of the intermediate and final soil cover shall not exceed 0 008 lb/ton of soil The volume of soil shall be converted to tons of soil using a soil density of 120 lb/cubic foot [District Rule 2201]*
- *The H₂S concentration of the influent landfill gas to the flares shall not exceed 46 9 ppmv [District Rule 2201]*

In addition to the above DEL's the following operating requirements will be included on the Authority to Construct

- *All equipment shall be constructed, maintained, and operated according to the specifications and plans contained in the permit applications, except as otherwise specified herein [District Rule 2201]*
- *The enclosed flares shall each be equipped with an LPG or natural gas-fired pilot [District Rule 2201]*
- *The enclosed flares shall each be equipped with automatic dampers, an automatic shutdown device, and a flame arrester [District Rule 2201]*

- *The gas collection system shall be operated in a manner which maximizes the quantity of landfill gas extracted while preventing overdraw that can cause fires or damage the gas collection system [District Rule 2201]*
- *During maintenance of the gas collection system or flares, emissions of landfill gas shall be minimized [District Rule 2201]*
- *Maintenance is defined as work performed on a gas collection system and/or control device in order to ensure continued compliance with District Rules, Regulations, and /or Permits to Operate, and to prevent its failure or malfunction [District Rule 2201]*

E Compliance Assurance

1 Source Testing

Initial source testing of the flares has already been completed. The following ongoing testing requirements will be included on the Authority to Construct permit:

- *For each flare, source testing to demonstrate compliance with the NO_x (lb/MMBtu), CO (lb/MMBtu), and VOC (98% destruction efficiency or 20 ppmvd VOC @ 3% O₂ as hexane) requirements of this permit shall be conducted at least once every 12 months [District Rules 1081 and 2201]*
- *Source testing for NO_x shall be conducted using CARB Method 7 or CARB Method 20 [District Rules 1081 and 2201]*
- *Source testing for CO shall be conducted using EPA Method 10 or 10B, CARB Methods 1 through 5 with CARB Method 10, or CARB Method 100 [District Rules 1081 and 2201]*
- *VOC emissions shall be conducted using EPA Method 18, 25, 25A, or 25C [District Rules 1081 and 2201]*
- *{109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing [District Rule 1081]*
- *{110} The results of each source test shall be submitted to the District within 60 days thereafter [District Rule 1081]*

2 Monitoring

In addition to the monitoring required by 40 CFR 60 Subpart WWW, the following monitoring requirements will be included on the Authority to Construct permit:

- *The combustion chamber of each flare shall be maintained at a temperature of at least 1,400 degrees Fahrenheit during operation [District Rule 2201]*

- *Each flare shall be equipped with a temperature indicator and recorder that measures and continuously records the operating temperature [District Rule 2201]*
- *For each flare, the facility shall install and maintain in proper operating condition a gas flow meter with a continuous recording device that measures the quantity of landfill gas processed each day [District Rule 2201]*
- *Permittee shall perform testing to measure the H₂S content of the landfill gas combusted in the flares on a quarterly basis using draeger tubes. If compliance with the landfill gas H₂S content limit is demonstrated for two consecutive quarters, this testing frequency may be changed to annual. Quarterly testing shall resume if any annual test shows non-compliance with the H₂S content limit [District Rule 2201]*

3 Recordkeeping

In addition to the recordkeeping required by 40 CFR 60 Subpart WWW, the following recordkeeping requirements will be included on the Authority to Construct permit

- *Permittee shall keep records of any maintenance to the landfill gas collection or control devices, including the reason for maintenance, duration of the maintenance, and any collection or control system downtime [District Rule 2201]*
- *Permittee shall maintain records of system inspections including date, time, and inspection results [District Rule 1070]*
- *For each flare, permittee shall keep records of emission source tests results [District Rule 2201]*
- *For each flare, permittee shall keep records of the continuous flare combustion temperature measurements, and the continuous volumetric landfill gas flow rate measurements. Permittee shall keep a daily and an annual record of the quantity of landfill gas processed in each flare [District Rule 2201]*
- *All records shall be retained for a period of at least five years and shall be made available for District inspection upon request [District Rules 1070, 2201, 40 CFR 60 Subpart WWW, and 40 CFR 60 Subpart AAAA]*

4 Reporting

In addition to the reporting requirements of 40 CFR 60 Subpart WWW, the following reporting requirements will be included on this Authority to Construct

- *The permittee shall notify the District by telephone at least 24 hours prior to performing any maintenance work that requires the landfill gas collection and control system to be shutdown. The notification shall include a description of the work, the date work will be performed, and the quantity of time needed to complete the maintenance work [District Rule 2201]*

Rule 2410 Prevention of Significant Deterioration

As discussed earlier in this evaluation, this project is not a major modification for PSD since the project does not result in a physical change in equipment and does not result in a change in the method of operation of the landfill. Therefore, the requirements of District Rule 2410 are not applicable.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this rule and has received their Title V Operating Permit. The proposed modification is a Minor Modification to the Title V Permit.

In accordance with Rule 2520, these modifications

- 1 Do not violate requirements of any applicable federally enforceable local or federal requirement,
- 2 Do not relax monitoring, reporting, or recordkeeping requirements in the permit and are not significant changes in existing monitoring permit terms or conditions,
- 3 Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis
- 4 Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include
 - a A federally enforceable emission cap assumed to avoid classification as a modification under any provisions of Title I of the Federal Clean Air Act, and
 - b An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Federal Clean Air Act, and
- 5 Are not Title I modifications as defined in District Rule 2520 or modifications as defined in section 111 or 112 of the Federal Clean Air Act, and
- 6 Do not seek to consolidate overlapping applicable requirements

As discussed earlier, the facility has applied for a Certificate of Conformity (COC). Therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility may operate under the ATC upon the submittal of a Title V administrative amendment application.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart CC, Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills

§60.32c Designated Facilities

§60.32c(a) states that a designated facility to which the requirements of Subpart CC are applicable to each existing municipal solid waste landfill for which construction, reconstruction, or modification was commenced before May 30, 1991. In 2005, Forward

Landfill (N-339) purchased Austin Road Landfill (N-3057) and merged the two landfills together to form what is currently Forward Inc Landfill. Additionally, the total capacity of the merged landfills was increased at the same time. Therefore, a modification occurred after May 30, 1991 and Subpart CC requirements do not apply.

40 CFR Part 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills

§60.750 Applicability, Designation of Affected Facility, and Delegation of Authority

§60.750(a) states the provisions of this subpart are applicable to each municipal solid waste landfill that has commenced construction, reconstruction, or modification on or after May 30, 1991. Forward Inc Landfill was modified after May 30, 1991, therefore the provisions of Subpart WWW apply. The following tables demonstrate that the proposed permit conditions will comply with the requirements of Subpart WWW.

40 CFR Part 60 Subpart WWW Requirements	Proposed Method of Compliance with Subpart WWW Requirements
§60.752 Standards for Air Emissions from Municipal Solid Waste (MSW) Landfills	
§60.752(a) states that each owner or operator of a MSW landfill having a design capacity less than 2.5 million megagrams or 2.5 million cubic meters by volume must submit an initial design capacity to the administrator.	The design capacity for this landfill is much greater than these thresholds; therefore, §60.752(a) requirements do not apply to Forward Inc Landfill.
§60.752(b) states that each owner or operator of an MSW landfill having a design capacity greater than 2.5 million megagrams and 2.5 million cubic meters must either comply with paragraph (b)(2) of this section or calculate an NMOC emission rate for the landfill using the procedure in §60.754. §60.752(b)(2) requirements are for landfills that have exceeded a 50 Mg/year NMOC threshold.	Per an NSPS submittal on September 26, 2005, modeling at Forward Inc Landfill indicates that the 50 Mg/year NMOC threshold was exceeded in 2004. Therefore, Forward Inc Landfill is required to comply with paragraph (b)(2).
<p>§60.752(b)(2)(i) requires the owner or operator to submit a collection and control system design plan prepared by a professional engineer within 1 year that includes the following:</p> <ul style="list-style-type: none"> (A) The collection and control system as described in the plan must meet the design requirements of paragraph (b)(2)(ii) of this section. (B) The collection and control system design plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of §60.753 through §60.758. (C) The collection and control system design plan must either conform with specifications for active collection systems or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to §60.759. (D) The Administrator must review the information submitted under paragraphs (b)(2)(i)(A), (B), and (C) and either approve it, disapprove it, or request additional information be submitted. 	Forward Inc Landfill submitted the plan within 1 year; therefore, this requirement has been satisfied.
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 752(b)(2)(ii) states that the owner or operator must install a collection and control system that captures the gas generated within the landfill as required by paragraphs (b)(2)(ii)(A) or (B) and (b)(2)(iii) of this section within 30 months after the first annual report in which the emission rate equal or exceeds 50 megagrams per year unless Tier 2 or Tier 3 sampling demonstrates that the emission rate is less than 50 megagrams per year. The facility has installed an active control system.</p> <p>§60 752(b)(2)(ii)(A) states that an active collection system shall</p> <ol style="list-style-type: none"> (1) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment (2) Collect gas from each area cell or group of cells in the landfill in which the initial solid waste has been placed for a period of <ol style="list-style-type: none"> (i) 5 years or more if active or (ii) 2 years or more if closed or at final grade (3) Collect gas at a sufficient extraction rate (4) Be designed to minimize off site migration of subsurface gas 	<p>This landfill is equipped with an active control system. The following conditions will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>The landfill gas collection system shall be designed and operated to 1) Handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment 2) Collect gas from each area cell or group of cells in the landfill in which the initial solid waste has been placed for a period of five years or more for an active landfill or 2 years or more for a closed landfill or landfill at final grade 3) Collect gas at a sufficient extraction rate and 4) Minimize off site migration of subsurface gas [40 CFR 60 752(b)(2)(ii)(A) 40 CFR 60 753(a) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 752(b)(2)(ii)(B) states that a passive collection system shall</p> <ol style="list-style-type: none"> (1) Comply with the provisions specified in paragraphs (b)(2)(ii)(A)(1) (2) and (2)(ii)(A)(4) of this section (2) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners must be installed as required under §258.40 	<p>The facility has installed an active control system. Therefore the requirements for a passive control system are not applicable.</p>

Continued on Next Page

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 752(b)(2)(iii) states that the collected gas must be routed to a control system that complies with one of the following requirements</p> <p>(A) Route all collected gas to an open flare designed and operated in accordance with 40 CFR §60 18 except as noted in §60 754(e)</p> <p>(B) Route all collected gas to a control system designed and operated to reduce NMOC by 98 weight percent or when an enclosed combustion device is used for control to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume must be established by an initial performance test no later than 180 days after the initial startup of the approved control system</p> <p>(1) If a boiler or process heater is used as a control device the landfill gas stream must be introduced into the flame zone</p> <p>(2) The control device must be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in §60 756</p> <p>(C) Route all collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of paragraph (b)(2)(iii)(A) or (B) of this section</p>	<p>The landfill gas is routed to the two flares or the IC engines operated by Ameresco (N 8593). The permits for the Ameresco facility include conditions enforcing this requirement. Initial testing to demonstrate compliance with this requirement for each flare has already been conducted. The following conditions will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>The landfill gas collected by the landfill gas collection system shall be controlled by at least one of the following devices: 1) The 60 MMBtu/hr flare, 2) the 102 MMBtu/hr flare and/or 3) The siloxane removal system and one of the IC engines permitted under Facility ID N 8573. Each device shall be operated at all times when the collected gas is routed to it. [District Rule 2201 and 40 CFR 60 752(b)(2)(iii)(B), 40 CFR 60 753(f) and 40 CFR 63 Subpart AAAA]</i> <i>The VOC destruction efficiency for the 60 MMBtu/hr flare shall be at least 98% by weight or the maximum non methane organic compound NMOC emissions from the flare shall not exceed 20 ppmv @ 3% O₂ (as hexane). [District Rule 2201, 40 CFR 60 752(b)(2)(iii)(B) and 40 CFR 63 Subpart AAAA]</i> <i>The VOC destruction efficiency for the 102 MMBtu/hr flare shall be at least 98% by weight or the maximum non methane organic compound NMOC emissions from the flare shall not exceed 20 ppmv @ 3% O₂ (as hexane). [District Rule 2201, 40 CFR 60 752(b)(2)(iii)(B) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 752(b)(2)(iv) states that the facility must operate the collection and control device installed to comply with this subpart in accordance with the provisions of §§ 60 753, 60 755 and 60 756</p>	<p>Compliance with the referenced sections will be discussed later in this table</p>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>Exterior vapor extraction wells leachate collection systems and perimeter horizontal collectors are exempt from the requirements of 40 CFR 60 753</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>All exterior vapor extraction wells leachate collection system components and perimeter horizontal collectors shall not be located over any waste and are exempt from the operational standards of 40 CFR 60 753 and the compliance provisions of 40 CFR 60 755 Forward Inc shall keep records of all components that qualify for this exemption and note their location with respect to the landfill's perimeter [40 CFR 60 752(b)(2)(ii) 60 753 60 755 60 756 60 757 60 758 60 759 and 40 CFR 63 Subpart AAAA]</i>
<p>§60 752(b)(2)(v) states that the collection and control system may be capped or removed provided that all of the following conditions are met</p> <p>(A) The landfill shall be a closed landfill as defined in §60 751 of this subpart A closure report shall be submitted to the Administrator as provided in §60 757(d)</p> <p>(B) The collection and control system shall have been in operation a minimum of 15 years and</p> <p>(C) Following the procedures specified in §60 754(b) of this subpart the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates The test dates shall be no less than 90 days apart and no more than 180 days apart</p>	<p>If the applicant wishes to pursue the option of removing the control devices an Authority to Construct application is required from the applicant and compliance with all other applicable regulations and rules will be required</p>
<p>§60 752(c) states that for the purposes of obtaining a Title V operating permit the owner of a MSW landfill subject to this subpart with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not required to obtain a Title V permit for the landfill under Part 70 or 71 of this chapter unless the landfill is otherwise subject to either Part 70 or 71 Otherwise a Title V operating permit is required</p>	<p>This landfill is rated greater than the thresholds listed and currently has a Title V operating permit Therefore this requirement has been satisfied</p>
<p>§60 752(d) states that when an MSW landfill subject to this subpart is closed the owner or operator is no longer subject to the requirement to maintain a Title V operating permit if the landfill is not otherwise subject to part the requirements of either Part 70 or Part 71 and if either of the following conditions are met</p> <p>(1) The landfill was never subject to the requirement for a control system under paragraph (b)(2) of this section or</p> <p>(2) The owner or operator meets the conditions for control system removal specified in paragraph (b)(2)(v) of this section</p>	<p>If the applicant wishes to pursue this option upon meeting these criteria an Authority to Construct application is required from the applicant and compliance with all other applicable regulations and rules will be required</p>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
§60 753 Operational Standards for Collection and Control Systems	
<p>§60 753(a) states that the owner or operator must operate the collection system such that gas is collected from each area cell or group of cells in the MSW landfill which solid waste has been in place for</p> <ul style="list-style-type: none"> • 5 years or more if active or • 2 years or more if closed or at final grade 	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>The landfill gas collection system shall be designed and operated to 1) Handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment 2) Collect gas from each area cell or group of cells in the landfill in which the initial solid waste has been placed for a period of five years or more for an active landfill or 2 years or more for a closed landfill or landfill at final grade 3) Collect gas at a sufficient extraction rate and 4) Minimize off site migration of subsurface gas [40 CFR 60 752(b)(2)(ii)(A) 40 CFR 60 753(a) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 753(b) states that the owner or operator of the landfill must operate the collection system with negative pressure at each wellhead except under the following conditions</p> <ol style="list-style-type: none"> (1) A fire or increased well temperature The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire These records shall be submitted with the annual reports provided in §60 757(f)(1) (2) Use of a geomembrane or synthetic cover The owner or operator shall develop acceptable pressure limits in the design plan (3) A decommissioned well A well may experience a static positive pressure after shut down to accommodate for declining flows All design changes shall be approved by the Administrator 	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall operate the landfill gas collection system with negative pressure at each wellhead except under the following conditions 1) A fire or increased well temperature The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire These records shall be submitted with the annual reports provided in 40 CFR 60 757(f)(1) 2) Use of a geomembrane or synthetic cover The owner shall develop acceptable pressure limits in the design plan 3) A decommissioned well A well may experience a static positive pressure after shut down to accommodate for declining flows All design changes shall be approved by the District [40 CFR 60 753(b) and 40 CFR 63 Subpart AAAA]</i>

Continued on Next Page

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 753(c) states that the owner or operator must operate each interior wellhead in a collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature nitrogen or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.</p> <ol style="list-style-type: none"> (1) The nitrogen level shall be determined using EPA Method 3C unless an alternative test method is established as allowed by §60 752(b)(2)(i) of this subpart. (2) Unless an alternative test method is established as allowed by §60 752(b)(2)(i) of this subpart the oxygen level shall be determined by an oxygen meter using EPA Method 3A or 3C except that <ol style="list-style-type: none"> (i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span. (ii) A data recorder is not required. (iii) Only two calibration gases are required a zero and span and ambient air may be used as the span. (iv) A calibration check is not required and (v) The allowable sample bias zero drift and calibration drive are ± 10 percent. 	<p>The following conditions will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • Unless otherwise stated on this permit the permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent [40 CFR 60 753(c) and 40 CFR 63 Subpart AAAA] • For each interior wellhead the nitrogen level shall be determined using EPA Method 3C unless an alternative test method is established as allowed by 40 CFR 60 752(b)(2)(i) [40 CFR 60 753(c)(1) and 40 CFR 63 Subpart AAAA] • For each interior wellhead unless an alternative test method is established as allowed by 40 CFR 60 752(b)(2)(i) the oxygen level shall be determined by an oxygen meter using EPA Method 3A or 3C except that 1) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span 2) A data recorder is not required 3) Only two calibration gases are required a zero and span and ambient air may be used as the span 4) A calibration check is not required and 5) The allowable sample bias zero drift and calibration drive are plus or minus 10 percent [40 CFR 60 753(c)(2) and 40 CFR 63 Subpart AAAA]
<p>§60 753(d) states that the owner or operator shall operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • Permittee shall operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas such as distressed vegetation and cracks or seeps in the cover on at least a quarterly basis. Permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing [40 CFR 60 753(d) 40 CFR 60 755 and 40 CFR 63 Subpart AAAA]
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 753(e) states that the owner or operator shall operate the system such that all collected gases are vented to a control system designed and operated in compliance with §60 752(b)(2)(iii). In the event the collection system or control system is inoperable the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall operate the landfill gas collection and control system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60 752(b)(2)(iii). In the event the collection system or control system is inoperable the gas mover system shall be shut down and all valves in the collection and control system contributing to the venting of the gas to the atmosphere shall be closed within one hour [40 CFR 60 753(e) and 40 CFR 63 Subpart AAAAA]</i>
<p>§60 753(f) states that the owner or operator shall operate the control or treatment system at all times when the collected gas is routed to the system.</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>The landfill gas collected by the landfill gas collection system shall be controlled by at least one of the following devices: 1) The 60 MMBtu/hr flare; 2) the 102 MMBtu/hr flare; and/or 3) The siloxane removal system and one of the IC engines permitted under Facility ID N 8573. Each device shall be operated at all times when the collected gas is routed to it. [District Rule 2201 and 40 CFR 60 752(b)(2)(iii)(B), 40 CFR 60 753(f) and 40 CFR 63 Subpart AAAAA]</i>
<p>§60 753(g) states that if monitoring demonstrates that the operational requirements in paragraphs (b), (c), or (d) of this section are not met, corrective action shall be taken as specified in §60 755(a)(3) through (5) or §60 755(c) of this subpart. If corrective actions are taken as specified in §60 755, the monitored exceedance is not a violation of the operational requirements of this section.</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>If monitoring demonstrates that the operational requirements in 40 CFR 60 753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60 755(a)(3) through (5) or 40 CFR 60 755(c). If corrective actions are taken as specified in 40 CFR 60 755, the monitored exceedance is not a violation of the operational requirements in 40 CFR 60 753. [40 CFR 60 753(g) and 40 CFR 63 Subpart AAAAA]</i>
<p align="center">§60 754 Test Methods and Procedures</p>	
<p>§60 754(a) specifies the procedure for calculating the landfill NMOC emission rate in order to determine whether a control device is required by §60 752(b)(2).</p>	<p>A collection and control system has already been installed to comply with the requirements of §60 752(b)(2); therefore, these calculations are no longer required and no further discussion is necessary.</p>
<p align="center">Continued on Next Page</p>	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
§60 754(b) states that after installation of a collection and control system in compliance with §60 755 the owner or operator shall calculate the NMOC emission rate for purposes of determining when the system can be removed as provided in §60 752(b)(2)(v) and includes equations for making such a determination	If the applicant wishes to pursue the option of removing the control devices an Authority to Construct application is required from the applicant and compliance with all other applicable regulations and rules will be required
§60 754(c) states that when calculating emissions for PSD purposes the owner or operator of each MSW landfill subject to the provisions of this subpart shall estimate the NMOC rate for comparison to the PSD and Major Source and significance levels of §§ 51 166 or 52 21 of this chapter using AP-42 or other approved measurement procedures	The NMOC emission rate has been calculated using an approved measurement procedure therefore this requirement has been satisfied
§60 754(d) states the calculation method to be used for the initial performance test required in §60 752(b)(2)(iii)(B)	The initial performance test has already been conducted Therefore this requirement is not applicable
§60 754(e) states the methods to determine the net heating value of the combusted landfill gas for the performance test required in §60 752(b)(2)(iii)(A)	§60 752(b)(2)(iii)(A) is applicable to open flare systems This landfill is controlled by enclosed flares Therefore this requirement is not applicable
§60 755 Compliance Provisions	
Exterior vapor extraction wells leachate collection systems and perimeter horizontal collectors are exempt from the requirements of 40 CFR 60 755	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>All exterior vapor extraction wells leachate collection system components and perimeter horizontal collectors shall not be located over any waste and are exempt from the operational standards of 40 CFR 60 753 and the compliance provisions of 40 CFR 60 755 Forward Inc shall keep records of all components that qualify for this exemption and note their location with respect to the landfill's perimeter [40 CFR 60 752(b)(2)(ii) 60 753 60 755 60 756 60 757 60 758 60 759 and 40 CFR 63 Subpart AAAA]</i>
§60 755(a)(1) lists the methodology to be used for determining the maximum expected gas generation flow rate for the landfill to determine compliance with §60 752(b)(2)(ii)(A)(1)	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>For the purpose of demonstrating that the gas collection system is designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control system permittee shall use one of the equations that are listed in 40 CFR 60 755(a)(1) [40 CFR 60 755(a)(1) and 40 CFR 63 Subpart AAAA]</i>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 755(a)(2) states that for the purpose of determining sufficient density of gas collectors for compliance with §60 752(b)(2)(ii)(A)(2) the owner or operator shall design a system of vertical wells horizontal collectors or other collection devices satisfactory to the Administrator capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> For the purpose of determining whether there is a sufficient density of gas collectors permittee shall design a system of vertical wells horizontal collectors or other collection devices satisfactory to the District capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards [40 CFR 60 755(a)(2) and 40 CFR 63 Subpart AAAA]
<p>§60 755(a)(3) states that for the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with §60 752(b)(2)(ii)(A)(3) the owner or operator shall measure gauge pressure in the gas collection system header at each individual well on a monthly basis If a positive pressure exists action shall be initiated to correct the exceedance within 5 calendar days except for the three conditions allowed under §60 753(b) If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure Any attempted corrective measure shall not cause exceedances of other operational or performance standards An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval</p> <p>§60 755(a)(4) states that owners or operators are not required to expand the system as required in paragraph (a)(3) of the section during the first 180 days after gas collection system startup</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> For the purpose of demonstrating whether the landfill gas collection system flow rate is sufficient the owner or operator shall measure gauge pressure in the gas collection system header at each individual well on a monthly basis Except in cases where the conditions allow the wellhead to operate without a negative pressure (as outlined in this permit) action shall be initiated to correct the exceedance within 5 calendar days if a positive pressure exists If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of a positive pressure Any attempted corrective measure shall not cause exceedances or other operational or performance standards An alternative timeline for correcting the exceedance may be submitted to the District for approval Expansion of the collection system during the first 180 days after gas collection system startup is not required [40 CFR 60 755(a)(3) 60 755(a)(4) and 40 CFR 63 Subpart AAAA]
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 755(a)(5) states that for the purpose of identifying whether excess air infiltration into the landfill is occurring the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in §60 753(c) If a well exceeds one of these operating parameters action shall be initiated to correct the exceedance within 5 calendar days If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance Any attempted corrective measure shall not cause exceedances of other operational or performance standards An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>For the purpose of identifying whether excess air infiltration into the landfill is occurring the permittee shall monitor the temperature and nitrogen or oxygen on a monthly basis If a well exceeds one of the temperature nitrogen or oxygen operating parameters of this permit action shall be initiated to correct the exceedance within five calendar days If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance Any attempted corrective measure shall not cause exceedances of other operational or performance standards An alternative timeline for correcting the exceedance may be submitted to the District for approval [40 CFR 60 755(a)(5) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 755(a)(6) states that an owner or operator seeking to demonstrate compliance with §60 752(b)(2)(i)(A)(4) through the use of a collection system not conforming to the specifications provided in §60 759 shall provide information satisfactory to the Administrator as specified in §60 752(b)(2)(i)(C) demonstrating that off site migration is being controlled</p>	<p>Compliance with the specifications of §60 759 will be required by the permit therefore this requirement does not apply</p>
<p>§60 755(b) states that for the purposes of compliance with §60 753(a) each owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan as provided in §60 752(b)(2)(i) Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of</p> <p>(1) 5 years or more if active or (2) 2 years or more if closed or at final grade</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>Extraction wells shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of 1) 5 years or more for an active landfill 2) 2 years or more for a closed landfill or a landfill at final grade [40 CFR 60 755(b) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 755(c)(1) states that after installation of the collection system the owner or operator shall monitor surface concentrations of methane along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector or other portable monitor meeting the specifications provided in paragraph (d) of this section</p>	<p>A condition requiring quarterly monitoring of the surface concentration of methane was presented earlier in this evaluation The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>Monitoring to determine the surface concentration of methane shall be conducted using an organic vapor analyzer flame ionization detector or other portable monitor meeting the specifications of 40 CFR 60 755(d) [40 CFR 60 755(c)(1) 40 CFR 60 755(d) and 40 CFR 63 Subpart AAAA]</i>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 755(c)(2) states that the background concentration of methane shall be determined by moving the probe inlet upwind and downwind the outside boundary of the landfill at a distance of at least 30 meters from the perimeter wells</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>The background concentration of methane shall be determined by moving the probe inlet upwind and downwind the outside boundary of the landfill at a distance of at least 30 meters from the perimeter walls [40 CFR 60 755(c)(2) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 755(c)(3) states that surface emission monitoring shall be performed in accordance with section 4 3 1 of EPA Method 21 of Appendix A of Part 40 except that the probe inlet shall be placed within 5 to 10 centimeters of the ground Monitoring shall be performed during typical meteorological conditions</p>	<p>The following condition will be included on the Authority to Construct Permit</p> <ul style="list-style-type: none"> <i>Surface monitoring of the methane concentration shall be performed in accordance with Section 4 3 1 of EPA Method 21 of Appendix A of 40 CFR except that the probe inlet shall be placed within 5 to 10 centimeters of the ground Monitoring shall be performed during typical meteorological conditions [40 CFR 60 755(c)(3) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 755(c)(4) states that any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the following actions shall be taken As long as the specified actions are taken the exceedance is not a violation of the operational requirements of §60 753(d)</p> <ol style="list-style-type: none"> i The location of each monitored exceedance shall be marked and the location recorded ii Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection of the vicinity of each exceedance shall be made and the location shall be re monitored within 10 calendar days of detecting the exceedance iii If the re-monitoring of the location shows a second exceedance additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance If re monitoring shows a third exceedance for the same location the actions specified in item v shall be taken and no further monitoring of that locations is required until the action specified in item v has been taken <p>This section is continued on the next page</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> Any surface monitoring reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the following actions shall be taken As long as the following specified actions are taken the exceedance is not a violation of the operational requirements of 40 CFR 60 753(d) 1) The location of each monitored exceedance shall be marked and the location recorded 2) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection of the vicinity of each exceedance shall be made and the location shall be re monitored within 10 calendar days of detecting the exceedance 3) If the re monitoring of the location shows a second exceedance additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance If re monitoring shows a third exceedance the action specified in item #5 of this condition shall be taken and no further monitoring of that location is required until the action specified in item #5 has been taken <p>This condition is continued on the next Page</p>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>iv Any location that initially showed an exceedance but has a methane concentration of less than 500 ppm above background at the 10-day re monitoring shall be re-monitored 1 month from the initial exceedance. If the 1-month re monitoring shows a concentration less than 500 parts per million above background no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re monitoring shows an exceedance the actions specified in item iii or item v shall be taken.</p> <p>v For any location where the monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance such as upgrading the blower header pipes or control device and a corresponding timeline for installation may be submitted to the Administrator for approval.</p>	<ul style="list-style-type: none"> 4) Any location that initially showed an exceedance but has a methane concentration of less than 500 ppm above background at the 10 day re monitoring shall be re-monitored 1 month from the initial exceedance. If the 1 month re monitoring shows a concentration less than 500 parts per million above background no further monitoring of that location is required until the next quarterly monitoring period. If the 1 month re-monitoring shows an exceedance the actions specified in item #3 or item #5 of this condition shall be taken. and 5) For any location where the monitored methane concentration equals or exceed 500 parts per million above background three times within a quarterly period a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance such as upgrading the blower header pipes or control device and a corresponding timeline for installation may be submitted to the District for approval [40 CFR 60 755(c)(4) and 40 CFR 63 Subpart AAAA]
<p>§60 755(c)(5) states that the owner or operator shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> <i>Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis [40 CFR 60 755(c)(5) and 40 CFR 63 Subpart AAAA]</i>

Continued on Next Page

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 755(d) states that each owner or operator seeking to comply with the provisions of paragraph (c) of this section shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices</p> <ol style="list-style-type: none"> (1) The portable analyzer shall meet the instrumentation specifications provided in section 3 of EPA Method 21 of Appendix A of this part except that methane shall replace all references to VOC (2) The calibration gas shall be methane diluted to a nominal concentration of 500 parts per million in air (3) To meet the performance evaluation requirements in Section 3.1.3 of EPA Method 21 of Appendix A of this part the instrument evaluation procedures of section 4.4 of EPA Method 21 of Appendix A of this part shall be used (4) The calibration procedures provided in section 4.2 of EPA Method 21 of Appendix A of this part shall be followed immediately before commencing a surface monitoring survey 	<p>The following condition will be included on the authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Monitoring to determine the surface concentration of methane shall be conducted using an organic vapor analyzer flame ionization detector or other portable monitor meeting the specifications of 40 CFR 60 755(d) [40 CFR 60 755(c)(1) 40 CFR 60 755(d) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 755(e) states that the provisions of this subpart shall apply at all times except during periods of start-up shutdown or malfunction provided the duration of start up shutdown or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices</p>	<p>The following condition will be included on the Authority to Construct</p> <ul style="list-style-type: none"> • <i>The requirements of 40 CFR 60 Subpart WWW shall apply at all times except during periods of start up shutdown or malfunction. The duration of start-up shutdown or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices [40 CFR 60 755(e) and 40 CFR 63 Subpart AAAA]</i>
§60 756 Monitoring of Operations	
<p>§60 756(a) states that each owner or operator seeking to comply with §60 752(b)(2)(ii)(A) for an active gas collection system shall install a sampling port and a thermometer other temperature measuring device or an access port for temperature measurements at each well head and</p> <ol style="list-style-type: none"> (1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in §60 755(a)(3) and (2) Monitor the nitrogen or oxygen concentration of the landfill gas on a monthly basis as provided in §60 755(a)(5) and (3) Monitor the temperature of the landfill gas on a monthly basis as provided in §60 755(a)(5) 	<p>Conditions requiring monthly gauge pressure nitrogen or oxygen and temperature measurements were included earlier in this evaluation. The following condition will be included on the Authority to Construct</p> <ul style="list-style-type: none"> • <i>Permittee shall install a sampling port and a thermometer other temperature measuring device or an access port for temperature measurements at each wellhead [40 CFR 60 756(a) and 40 CFR 63 Subpart AAAA]</i>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 756(b) states that each owner or operator seeking to comply with §60 752(b)(2)(iii) using an enclosed combustor shall calibrate maintain and operate according to the manufacturer's specifications the following equipment</p> <ol style="list-style-type: none"> (1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 degrees Celsius whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts (2) A device that records flow to or bypass of the control device. The owner or operator shall either <ol style="list-style-type: none"> (i) Install calibrate and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes or (ii) Secure the bypass line valve in the closed position with a car seal or a lock and key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line 	<p>The following conditions will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • For each enclosed flare permittee shall calibrate maintain and operate according to the manufacturer's specifications a temperature monitoring device to measure temperature in the enclosed flare with a minimum accuracy of plus or minus 1 percent of the temperature being measured expressed in degrees Celsius or plus or minus 0.5 degrees Celsius whichever is greater [40 CFR 60 756(b)(1) and 40 CFR 63 Subpart AAAA] • For each enclosed flare permittee shall calibrate maintain and operate according to the manufacturer's specifications a device that records flow to or bypass of the control device. Permittee shall either 1) Install calibrate and maintain a gas flow rate measuring device that shall record the flow to the control device at least once every 15 minutes or 2) shall secure the bypass line valve in the closed position with a car seal or a lock and key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in a closed position and that the gas flow is not diverted through the bypass line [40 CFR 60 756(b)(2) and 40 CFR 63 Subpart AAAA]
<p>§60 756(c) lists requirements for owners seeking to comply with §60 752(b)(2)(iii) using an open flare</p>	<p>This facility uses enclosed flares to comply with §60 752(b)(2)(iii) therefore the requirements of §60 756(c) are not applicable</p>
<p>§60 756(d) lists requirements for owners seeking to comply with §60 752(b)(2)(iii) using devices other than an open flare or enclosed combustor</p>	<p>This facility uses enclosed flares to comply with §60 752(b)(2)(iii) therefore the requirements of §60 756(d) are not applicable</p>
<p>§60 756(e) states that each owner or operator seeking to install a collection device that does not meet the specifications in §60 759 or is seeking to monitor alternative parameters to those required by §60 753 through §60 756 shall provide information satisfactory to the Administrator as provided in §60 752(b)(2)(i)(B) and (C) describing the design and operation of the collection system the operating parameters that would indicate proper performance and appropriate monitoring procedures. The Administrator may specify additional appropriate monitoring procedures</p>	<p>The control system meets the specifications of §60 759 and the facility monitors the parameters listed in §60 753 through §60 756. Therefore the requirement listed in §60 756(e) requirement is not applicable</p>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 756(e) states that each owner or operator seeking to demonstrate compliance with §60 755(c) shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in §60 755(d) Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> For a closed landfill that has no monitored exceedances of the standard for surface concentrations of methane in three consecutive quarterly monitoring periods may skip to annual monitoring Any methane reading of 500 ppm or more above background detected during the annual monitoring shall return the frequency of monitoring of surface concentrations to quarterly monitoring [40 CFR 60 756(e) and 40 CFR 63 Subpart AAAA]
§60 757 Reporting Requirements	
<p>§60 757(a) states that each owner or operator subject to the requirements of this subpart shall submit an initial design capacity report to the Administrator</p>	<p>This reporting requirement has already been satisfied</p>
<p>§60 757(b) states that each owner or operator subject to the requirements of this subpart shall submit an NMOC emission rate report to the Administrator initially and annually thereafter except as provided for in §60 757(b)(1)(ii) or (b)(3) of this section</p> <p>§60 757(b)(3) states that each owner or operator subject to the requirements of this Subpart is exempted from the requirements of paragraphs (b)(1) and (2) of this section after the installation of a collection and control system in compliance with §60 752(b)(2) during such time as the collection and control system is in operation and in compliance with §§ 60 753 and 60 755</p>	<p>The facility has installed a control device and meets the exemption requirements listed in §60 757(b)(3) therefore this reporting requirement is not applicable</p>
<p>§60 757(c) states that each owner subject to the provisions of §60 752(b)(2)(i) shall submit a collection and control system design plan to the administrator within 1 year of the first report required under paragraph (b) of this section in which the emission rate equals or exceeds 50 megagrams per year</p>	<p>This reporting requirement has already been satisfied</p>
<p>§60 757(d) states that each owner of a controlled landfill shall submit a closure report to the Administrator within 30 days of waste acceptance cessation The Administrator may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258 60 If a closure report has been submitted to the Administrator no additional wastes may be placed into the landfill without filing a notification of modification as described under §60 7(a)(4)</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> The permittee shall submit a closure report to the District within 30 days of waste acceptance cessation The District may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258 60 If a closure report has been submitted to the District no additional waste may be placed into the landfill without filing a notification of modification as described on 40 CFR 60 7(a)(4) [40 CFR 60 757(d) and 40 CFR 63 Subpart AAAA]
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 757(e) states that each owner or operator of a controlled landfill shall submit an equipment removal report to the Administrator within 30 days prior to removal or cessation of operation of the control equipment</p> <p>(1) The equipment removal report shall contain the following</p> <ul style="list-style-type: none"> (i) A copy of the closure report submitted in accordance with paragraph (d) of this section (ii) A copy of the initial performance test report demonstrating that the 15 year minimum control period has expired and (iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year <p>(2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in §60 752(b)(2)(v) have been met</p>	<p>If the applicant wishes to pursue the option of removing the control devices an Authority to Construct application is required from the applicant and compliance with all other applicable regulations and rules will be required</p>
<p>§60 757(f) states that each owner of a landfill seeking to comply with §60 752(b)(2) using an active collection system designed in accordance with §60 752(b)(2)(ii) shall submit to the Administrator annual reports of the recorded information in (f)(1) through (f)(6) of this paragraph. The initial report is required within 180 days of installation and start-up of the collection system. For enclosed combustion devices and flares reportable exceedances are defined under §60 758(c). The report shall include the following</p> <ul style="list-style-type: none"> (1) Value and length of time for exceedance of applicable parameters monitored under §60 756(a) (b) (c) and (d) (2) Description of duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under §60 756 (3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time control device was not operating (4) All periods when the control system was not operating in excess of 5 days (5) The location of each exceedance of the 500 parts per million methane concentration as provided in §60 753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month and (6) The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3) (b) and (c)(4) of §60 755 	<p>The following condition will be included in the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall submit a report to the District at least once every six months that contains the following 1) Value and length of time for each exceedance of applicable parameters monitored under 40 CFR 60 756(a) (b) (c) and (d) 2) Description of duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60 756 3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time control device was not operating 4) All periods when the control system was not operating in excess of five days 5) The location of each exceedance of the 500 parts per million methane concentration as provided in 40 CFR 60 753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month and 6) The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60 755(a)(3) (b) and (c)(4) [40 CFR 60 757(f) and 40 CFR 63 Subpart AAAA]</i>

Continued on Next Page

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
§60 757(g) states each owner or operator seeking to comply with §60 752(b)(2)(iii) shall include the information in §60 757(g)(1) through §60 757(g)(6) with the initial performance test	The initial performance test has already been conducted and this requirement was satisfied
§60 758 Recordkeeping Requirements	
§60 758(a) states that except as provided in §60 752(b)(2)(i)(B) each owner or operator of an MSW landfill subject to the provisions of §60 752(b) shall keep for at least 5 years up to-date readily accessible on-site records of the design capacity report which triggered §60 752(b) the current amount of solid waste in place and the year by year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall keep records of the design capacity report which triggered 40 CFR 60 752(b) requirements the current amount of solid waste in place and the year-by-year waste acceptance rate [40 CFR 60 758(a) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 758(b) states that except as provided in §60 752(b)(2)(i)(B) each owner or operator of a controlled landfill shall keep up-to date readily accessible records for the life of the control equipment of the following data as measured during the initial performance test or compliance determination. Records of subsequent tests and monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.</p> <ol style="list-style-type: none"> (1) Where an operator or owner subject to the provisions of this subpart seeks to demonstrate compliance with §60 752(b)(2)(ii) <ol style="list-style-type: none"> (i) The maximum expected gas generation flow rate as calculated in §60 755(a)(1) (ii) The density of wells horizontal collectors surface collectors or other gas extraction devices determined using the procedures specified in §60 759(a)(1) (2) Where an owner or operator subject to this subpart seeks to demonstrate compliance with §60 752(b)(2)(iii) through the use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity greater than 44 megawatts <ol style="list-style-type: none"> (i) The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test (ii) The percent reduction of NMOC determined as specified in §60 752(b)(2)(iii)(B) achieved by the control device (3) This section lists requirements for units served by a process heater or boiler (4) This section lists requirements for units served by an open flare 	<p>The unit is not served by an open flare or process heater. Therefore the requirements of 40 CFR 60 758(b)(3) and (4) do not apply. The following condition will be included on the Authority to Construct permit to address the remaining 40 CFR 60 758(b) requirements</p> <ul style="list-style-type: none"> • <i>Permittee shall keep records of the following data as measured during the initial performance test or compliance determination: 1) The maximum expected gas generation flow rate as calculated per 40 CFR 60 755(a)(1) 2) The density of wells horizontal collectors surface collectors or other gas extraction devices as determined using the procedures specified in 40 CFR 60 759(a)(1) 3) For each enclosed flare the average combustion temperature measured at least every 15 minutes and averaged over the same time period for the source test and 4) For each enclosed flare the percent reduction of NMOC determined as specified in 40 CFR 60 752(b)(2)(iii)(B) [40 CFR 60 758(b)(1) and (2) and 40 CFR 63 Subpart AAAA]</i>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 758(c) states that the owner or operator of a controlled landfill shall keep for 5 years up-to-date readily accessible continuous records of the equipment operating parameters specified to be monitored in §60 756 as well as up to date readily accessible records of operation during which the parameter boundaries established during the most recent performance tests are exceeded</p> <p>(1) The following shall constitute exceedances that shall be recorded and reported under §60 757(f)</p> <p>(i) For enclosed combustors except for boilers and process heaters with a design heat capacity of 44 megawatts or greater all 3 hour periods of operation during which the average combustion temperature was more than 28 °C below the average combustion temperature during the most recent performance test at which compliance with §60 752(b)(2)(iii) was determined</p> <p>(ii) For boilers or process heaters whenever there is a change in location at which the vent steam is introduced into the flame zone as required under paragraph (b)(3) of this section</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall keep continuous records of the equipment operating parameters specified to be monitored in 40 CFR 60 756 as well as up to date records of operation during with the parameter boundaries established during the most recent performance tests are exceeded For each enclosed flare all 3 hour periods of operation during with the average combustion temperature was more than 28 degree Celsius below the average combustion temperature during the most recent performance test shall constitute an exceedance and shall be recorded and reported under 40 CFR 60 757(f) [40 CFR 60 758(c) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 758(d) states that the owner or operator subject to the provision of this subpart shall keep for the life of the collection system an up to date readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label of each collector</p> <p>(1) Each owner or operator shall keep up to-date readily accessible records of the installation date and location of all newly installed collectors as specified under §60 755(b)</p> <p>(2) Each owner or operator shall keep up to date readily accessible documentation of the nature date of disposition amount and location of asbestos containing or non-degradable waste excluded from collection as provided in §60 759(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in §60 759(a)(3)(ii)</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall keep for the life of the collection system a plot map showing each existing and planned collector in the system and providing a unique identification location label of each collector Permittee shall keep records of the installation date and location of all newly installed collectors as specified under 40 CFR 60 755(b) Permittee shall keep records of the date of disposition amount and location of asbestos containing or non degradable waste excluded from collection as provided in 40 CFR 60 759(a)(3)(i) as well as any non-productive areas excluded from collection as provided in 40 CFR 60 759(a)(3)(ii) [40 CFR 60 758(d) and 40 CFR 63 Subpart AAAA]</i>
<p>§60 758(e) states that each owner or operator shall keep for at least 5 years up-to date readily accessible records of all collection and control system exceedances of the operational standards in §60 753 the reading in the subsequent month whether or not the second reading is an exceedance and the location of each exceedance</p>	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall keep records of all collection and control system exceedances of the operational standards in 40 CFR 60 753 the reading in the subsequent month and whether or not the second reading is an exceedance and the location of each exceedance [40 CFR 60 758(e) and 40 CFR 63 Subpart AAAA]</i>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
§60 758(f) outlines recordkeeping requirements that convert their design capacity from volume to mass or mass to volume to demonstrate that the capacity is less than 2 5 million megagrams or 2 5 million cubic meters	Forward Inc Landfill is larger than these thresholds therefore the recordkeeping requirements of §60 758(f) do not apply
§60 759 Specifications for Active Collection Systems	
<p>§60 759(a) requires each owner or operator to site active collection wells horizontal collectors surface collectors or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the administrator</p> <p>(1) The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer The following issues shall be addressed in the design depths of refuse refuse gas generation rates and flow characteristics cover properties gas system expandability leachate and condensate management accessibility compatibility with filling operations integration with closure end use air intrusion control corrosion resistance fill settlement and resistance to the refuse decomposition heat</p> <p>(2) The sufficient density of gas collection devices determined in (a)(1) shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter and exterior</p> <p>(3) The placement of gas collection devices in paragraph (a)(1) of this section shall control all gas producing areas except the following</p> <p>(i) Any segregated area of asbestos or non degradable material may be excluded from collection if documented as provided under §60 758(d) The documentation shall provide the nature date of deposition location and amount of asbestos or non-degradable material deposited in the area and shall be provided to the Administrator upon request</p> <p>(ii) Any nonproductive area of the landfill may be excluded from control provided that the total of all excluded areas can be shown to contribute to less than 1 percent of the total amount of NMOC emissions from the landfill</p>	<p>The following conditions will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall site active collection wells horizontal collectors surface collectors and other extraction devices at a sufficient density throughout all gas producing areas of the landfill using the procedures listed in 40 CFR 60 759(a) unless alternative procedures have been approved by the District [40 CFR 60 759(a) and 40 CFR 63 Subpart AAAA]</i> • <i>The collection devices within the landfill interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer The following issues shall be addressed in the design depths of refuse refuse gas generation rates and flow characteristics cover properties gas system expandability leachate and condensate management accessibility compatibility with filling operations integration with closure end use air intrusion control corrosion resistance fill settlement and resistance to the refuse decomposition heat The design shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter and exterior [40 CFR 60 759(a)(1) and (2) and 40 CFR 63 Subpart AAAA]</i> • <i>The placement of gas collection devices shall control all gas producing areas except the following 1) Any segregated area of asbestos or non degradable material may be excluded from collection if documented as provided in 40 CFR 60 758(d) The documentation shall provide the nature date of disposition location and amount of asbestos or non degradable material deposited in the area and shall be provided to the District upon request 2) Any nonproductive area of the landfill may be excluded from control provided the total of all excluded areas can be shown to contribute to less than 1 percent of the total amount of non-methane organic compound emissions from the landfill [40 CFR 60 759(a)(3) and 40 CFR 63 Subpart AAAA]</i>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 759(b) states that each owner or operator shall construct the gas collection devices using the following equipment or procedures</p> <p>(1) The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC) high density polyethylene (HDPE) pipe fiberglass stainless steel or other nonporous corrosion resistant material of suitable dimensions to convey projected amounts of gases withstand installation static and settlement forces and withstand planned overburden or traffic loads The collection system shall extend as necessary to comply with emission and migration standards Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control Perforations shall be situated with regard to the need to prevent excessive air infiltration</p> <p>(2) Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover area or refuse into the collection system or gas into the air Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations</p> <p>(3) Collections devices may be connected to the collection header pipes below or above the landfill surface The connector assembly shall include a positive closing throttle valve any necessary seals and couplings access couplings and at least one sampling port The collection devices shall be constructed of PVC HDPE fiberglass stainless steel or other nonporous materials of suitable thickness</p>	<p>The following conditions will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC) high density polyethylene (HDPE) pipe fiberglass stainless steel or other nonporous corrosion resistant material of suitable dimensions to convey projected amounts of gases withstand installation static and settlement forces and withstand planned overburden or traffic loads The collection system shall extend as necessary to comply with emission and migration standards Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control Perforations shall be situated with regard to the need to prevent excessive air infiltration [40 CFR 60 759(b)(1) and 40 CFR 63 Subpart AAAA]</i> • <i>Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross section so as to allow for their proper construction and completion Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover area or refuse into the collection system or gas into the air Any gravel used around pipe perforations shall be of a dimension so as not to penetrate or block perforations [40 CFR 60 759(b)(2) and 40 CFR 63 Subpart AAAA]</i> • <i>Collection devices may be connected to the collection header pipes below or above the landfill surface The connector assembly shall include a positive closing throttle valve any necessary seals and couplings access couplings and at least one sampling port The collection devices shall be constructed of PVC HDPE fiberglass stainless steel or other nonporous materials of suitable thickness [40 CFR 60 759(b)(3) and 40 CFR 63 Subpart AAAA]</i>
Continued on Next Page	

40 CFR Part 60 Subpart WWW Requirements Continued from Previous Page	Proposed Method of Compliance with Subpart WWW Requirements
<p>§60 759(c) states that each owner or operator shall convey the landfill gas to a gas control system in compliance with §60 752(b)(2)(iii) through the collection header pipes. The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended period of the gas moving equipment using the following procedures</p> <ol style="list-style-type: none"> (1) For existing collection systems the flow data if flow data exists shall be used to project the maximum flow rate (2) For new collection systems or existing collection system for which no flow data exists the maximum flow rate shall be in accordance with §60 755(a)(1) 	<p>The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall convey the landfill gas to the control system through the collection header pipes. The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended period of gas moving equipment. For existing collection systems the flow data if flow data exists shall be used to project the maximum flow rate. For new collection systems or existing collection systems for which no flow data exists the maximum flow rate shall be in accordance with 40 CFR 60 755(a)(1) [40 CFR 60 759(c) and 40 CFR 63 Subpart AAAA]</i>

Rule 4002 National Emission Standards for Hazardous Air Pollutants

40 CFR Part 62, Subpart GGG Federal Plan Requirements for Municipal Solid Waste Landfills that Commenced Construction Prior to May 30, 1991 and Have Not Been Modified or Reconstructed Since May 30, 1991

As stated earlier in this evaluation, this landfill has been modified since May 30, 1991. Therefore, the requirements of Subpart GGG do not apply to this landfill.

40 CFR Part 63 Subpart AAAA National Emission Standards for Hazardous Air Pollutants Municipal Solid Waste Landfills

§63 1935 Am I Subject to This Subpart

§63 1935 states that an owner or operator is subject to this subpart if they own or operate a municipal solid waste landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition and meets any one of the following criteria:

- (a) The MSW landfill is a Major Source as defined in 40 CFR 63.2 of Subpart A
- (b) The MSW landfill is collocated with a major source as defined in 40 CFR 63.2 of Subpart A
- (c) The MSW landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million MG or 2.5 million m³ and that is not permanently closed as of January 16, 2003

It was previously determined that the landfill is subject to the requirements of Subpart AAAA. The following table shows the requirements of Subpart AAAA and the proposed method of compliance with those requirements.

40 CFR Part 63 Subpart AAAA Requirements	Proposed Method of Compliance with Subpart AAAA Requirements
§63 1955 What Requirements Must I Meet?	
§63 1955(a)(1) states that the landfill must comply with the requirements of 40 CFR 60 Subpart WWW	Compliance with 40 CFR 60 Subpart WWW was demonstrated earlier in this evaluation. The permit conditions for compliance with 40 CFR 60 Subpart WWW will include a rule reference to 40 CFR 63 Subpart AAAA
§63 1955(b) states that for landfills required to install a collection and control system by §40 CFR 60 752(b)(2) of 40 CFR 60 Subpart WWW the requirements of §§63 1960 through 63 1985 and the general NESHAPs provisions is required	As demonstrated earlier in this evaluation compliance is expected with 40 CFR 60 Subpart WWW requirements
§63 1960 How Is Compliance Determined?	
§63 1960 states that compliance with Subpart AAAA is determined in the same way it is determined for 40 CFR 60 Subpart WWW. If a deviation occurs for Subpart WWW then the operator or owner has failed to meet the control device operating conditions described in Subpart AAAA and has deviated from the requirements of Subpart AAAA. Finally the facility must develop a written SSM plan according to the provisions of 40 CFR 63 6(e)(3). A copy of the SSM plan must be maintained on site. Failure to write or maintain a copy of the SSM plan is a deviation from the requirements of Subpart AAAA.	In addition to the 40 CFR 60 Subpart WWW requirements listed earlier the following condition will be included on the Authority to Construct permit <ul style="list-style-type: none"> • <i>Permittee shall develop a written SSM plan according to the provisions of 40 CFR 63 6(e)(3). A copy of the SSM plan shall be maintained on site. Failure to write or maintain a copy of the SSM plan is a deviation from the requirements of 40 CFR 63 Subpart AAAA [40 CFR 63 1960]</i>
§63 1965 What is a Deviation?	
<p>§63 1965(a) states that a deviation occurs when the control device operating parameter boundaries described in §40 CFR 60 758(c)(1) of Subpart WWW are exceeded</p> <p>§63 1965(b) states that a deviation occurs when 1 hour or more of the hours during the 3 hour block averaging period does not constitute a valid hour of data. A valid hour of data must have measured the values for at least three 15 minute monitoring periods within the hour</p> <p>§63 1965(c) states that a deviation occurs when the SSM plan is not developed or maintained on site</p>	<p>In addition to previously stated permit conditions for 40 CFR 60 Subpart WWW and deviations for not developing or maintaining the SSM plan on site the following condition shall be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>For parameters required to be continuously monitored by 40 CFR 60 Subpart WWW a deviation of 40 CFR 63 Subpart AAAA shall be deemed to have occurred when 1 hour or more of the hours during the 3-hour block averaging period does not constitute a valid hour of data. A valid hour of data must have measured values for at least three 15-minute monitoring periods within the hour [40 CFR 63 1965(b)]</i>
§63 1980 What Records and Reports Must I Keep and Submit?	
<p>§63 1980(a) states that the owner or operator must keep records and reports as specified in 40 CFR 60 Subpart WWW</p> <p>§63 1980(b) states that the owner or operator must also keep records and reports as specified in the general provisions of 40 CFR Part 60 and 40 CFR Part 63 as shown in Table 1 of this Subpart</p> <p>The remainder of the recordkeeping requirements of this section is for landfills that operate bioreactors</p>	<p>This landfill does not operate a bioreactor. The following condition will be included on the Authority to Construct permit</p> <ul style="list-style-type: none"> • <i>Permittee shall keep records and reports as specified in the general provisions of 40 CFR Part 60 and 40 CFR Part 63 as shown in Table 1 of 40 CFR part 63 Subpart AAAA [40 CFR 63 1980(b)]</i>

Rule 4101 Visible Emissions

District Rule 4101 Section 5 0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringelmann 1 or equivalent to 20% opacity

The following condition will be included on the Authority to Construct permit

- *{4383} No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101 (02/17/05) If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition [District Rule 4101, and County Rules 401 (in all eight counties in the San Joaquin Valley)]*

Rule 4102 Nuisance

Section 4 0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public Public nuisance conditions are not expected as a result of these operations provided the equipment is well maintained Therefore, compliance with this rule is expected

The following condition will be included on the Authority to Construct permit

- *No air contaminant shall be released into the atmosphere which causes a public nuisance [District Rule 4102]*

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification the District perform an analysis to determine the possible impact to the nearest resident or worksite

This project does not result in an increase in emissions from the landfill, nor will the project result in changes to parameters that might affect the previously determined health risk from the landfill Therefore, a risk management review is not necessary for this project

Rule 4201 Particulate Matter Concentration

Section 3 1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0 1 grain per dry standard cubic foot

Compliance with the requirements of District Rule 4201 was demonstrated in District Project N-1062444 and this proposal will not affect that determination. The following condition will be included on the Authority to Construct permit:

- *Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration [District Rule 4201]*

Rule 4301 Fuel Burning Equipment

This rule applies to fuel burning equipment, which is defined as any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer.

The enclosed flares at this site are direct-fired and do not produce heat or power for use. Therefore, the requirements of District Rule 4301 are not applicable.

District Rule 4311 Flares

Section 4.2 of this Rule states that the requirements of District Rule 4311 are not applicable to flares that are subject to the requirements of 40 CFR 60 Subpart WWW. Since the flares are subject to the requirements of 40 CFR 60 Subpart WWW, the requirements of District Rule 4311 do not apply.

Rule 4642 Solid Waste Disposal Sites

Section 4.1.2 of this Rule states that the requirements of District Rule 4642 are not applicable to any solid waste disposal site that is subject to the requirements of 40 CFR 60 Subpart WWW. Since this landfill is subject to the requirements of 40 CFR 60 Subpart WWW, the requirements of District Rule 4642 do not apply.

Rule 4801 Sulfur Compounds

Per Section 3.1, a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge 0.2 % by volume calculated as SO₂ on a dry basis averaged over 15 consecutive minutes.

Compliance with District Rule 4801 requirements was demonstrated in District Project N-1062444 and this proposal will not affect that determination.

40 CFR Part 64 Compliance Assurance Monitoring

40 CFR Part 64 requires Compliance Assurance Monitoring (CAM) for units that meet the following three criteria

- 1) the unit must have an emission limit for the pollutant,
- 2) the unit must have add-on controls for the pollutant these are devices such as flue gas recirculation (FGR), baghouses, and catalytic oxidizers, and
- 3) the unit must have a pre-control potential to emit of greater than the major source thresholds

The following Major Source thresholds are generally used, as necessary, to determine whether CAM is triggered

Pollutant	lb/year	ton/year
NOx	20,000	10
SOx	140 000	70
PM10	140 000	70
CO	200 000	100
VOC	20,000	10

The facility is a Major Source for NOx CO, and VOC, therefore, a CAM determination must be performed for those pollutants. The landfill is not equipped with an add-on control device for NOx or CO, therefore, CAM is not triggered for those pollutants. While the permit includes VOC emission limitations and standards for the enclosed flares, those emission limits are based on emission limitations or standards that were proposed by EPA after November 15, 1990 pursuant to Sections 111 (NSPS) and 112 (NESHAPS) of the Clean Air Act. Pursuant to §64 2(b)(i), the requirements of Part 64 do not apply to emission limitations or standards proposed after November 15, 1990 pursuant to Sections 111 and 112 of the Clean Air Act. Since the permit will only contain emission limits that are exempt from Part 64, CAM is not triggered for VOC emissions.

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities,
- Identify the ways that environmental damage can be avoided or significantly reduced,
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible, and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved

The District performed an Engineering Evaluation (this document) for the proposed project and determined that all project specific emission units do not trigger Best Available Control Technology (BACT) requirements. Furthermore, the District has determined that potential emission increases would have a less than significant health impact on sensitive receptors.

Issuance of permits for emissions units not subject to BACT requirements and with health impact less than significant is a matter of ensuring conformity with applicable District rules and regulations and does not require discretionary judgment or deliberation. Thus, the District concludes that this permitting action constitutes a ministerial approval. Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

EPA Consent Decree Case No 2 11-cv-00590 EFB

The following table lists the requirements of the EPA Consent Decree and the method of compliance with the consent decree.

EPA Consent Decree Requirement	Method of Compliance with EPA Consent Decree Requirement
Paragraph 11 of the consent decree states that except as provided in Paragraph 13 Forward Inc Landfill shall comply with all permits issued for the Facility pursuant to the Act District Rules 2010 2070 2201 and 2520 and with all applicable requirements in the following regulations relating to the operation of the gas collection and control system (a) 40 CFR 60 Subpart WWW (b) 40 CFR 63 Subpart AAAA	Compliance with the District rules 40 CFR 60 Subpart WWW and 40 CFR 63 Subpart AAAA was outlined earlier in this evaluation
Paragraph 12(a) states that Forward Landfill shall complete the previously planned Improvements to Facility GCCS described in Appendix A by October 31 2012	This requirement has been satisfied
Paragraph 12(b) states that Forward Landfill shall apply to the District on an expedited basis for and take all necessary action to obtain a modification to its Title V operating permit for the Facility that will require it to operate interior wells in the GCCS at oxygen levels less than the numerical limit specified in 40 CFR 60.753(c) currently 5 percent	This project is based on the application submitted by Forward Landfill Inc to satisfy this requirement of the consent decree and the application was submitted prior to December 31 2012
Paragraph 12(c) states that Forward Landfill shall move gas probes 7 through 12 located at the edge of the landfill at least 100 feet outside of the waste line and shall maintain a minimum 100 foot buffer between the probes and the waste	This requirement has been satisfied
Continued on Next Page	

EPA Consent Decree Requirement Continued from Previous Page	Method of Compliance with EPA Consent Decree Requirement
Paragraph 12(d) states that Forward Landfill shall comply with the intermediate cover requirements established in California Code of Regulations Title 27 §§ 20700 20705 and shall implement a program to monitor on a monthly basis the integrity of the landfill s cover and shall implement landfill cover repairs as necessary as provided in 40 CFR §60 755(c)(5)	This requirement is not a clean air act requirement and will not be included on the permit
Paragraph 12(e) states that Forward Landfill shall implement a program to monitor on a monthly basis the integrity of all well boots and seals in the GCCS and shall repair and replace those well boots and seals as necessary to minimize oxygen intrusion into the Landfill	This requirement is not a clean air act requirement and will not be included on the permit
Paragraph 12(f) states that if a well is installed after February 1 2012 as part of the GCCS Forward Landfill shall install a sampling port at each such wellhead to take measurements of oxygen and other parameters as provided in 40 CFR §60 756(a)	A condition requiring compliance with this requirement was included in the 40 CFR 60 Subpart WWW section of this evaluation
Paragraph 13 lists interim wellhead oxygen limit requirements	The requirements of this paragraph expire upon the issuance and implementation of this Authority to Construct permit
Paragraph 14 lists an interim wellhead temperature limit of 141 degrees Fahrenheit for wellheads A11-05 A11-06 A11-07 A11-08 A11-09 A11-10 A11-11 FU03-01R FU04-14R FU04-15R FU04-18R FU04-27R FU05-08R FU05-10R FU06-15 FU06-16 FU08-02 and FU08-03 The alternative gas temperature limit is necessary for the indicated wells to maintain compliance and will continue to apply after the expiration of the EPA Consent Decree	Discussed in the following section

Request to Increase Wellhead Operating Temperature Limit for Various Wellheads

As stated in the table in the previous section several wellheads were granted a higher operating limit of 141 degrees F by the US EPA consent decree It is expected that these wellheads will require the 141 degree F limit for continued compliance following the issuance of the new permit therefore, these wells will continue to be subject to the higher 141 degree F limit in the new permit

In addition to the wells listed in the section above, the applicant has resubmitted a request (See Appendix VI) to increase the operating temperature limit for several other wellheads at the landfill The following wellheads are listed in the latest request A11-04, A12-02, A12-03, A12-04, A12-05, A12-13S, A12-14, A12-16, AO65RS, 05-15R, 04-19R, F12-01, F12-02, F12-03, F12-06 F12-08, F12-09, F12-10, F12-11, Top Deck Well 01, Top Deck Well 04, and Top Deck Well 05

The facility has submitted the following reasons to supplement the request for the higher operating temperature limit for these wellheads

- 1 Elevated temperatures have been observed in the deepest portions of the landfill, as shown in Figure 1 (See Appendix VI) This is a common occurrence in landfills where the deep gas exhibits the highest temperatures
- 2 Installation of additional wells, as required by the New Source Performance Standards (NSPS) and the EPA Consent Decree, have not significantly helped to correct the elevated temperatures monitored in these wells, rather the installations continue to show that this area of the landfill (red location points in Figure 1 See Appendix VI) consistently operates at a higher temperature Elevated operated temperatures can be attributed to the type of refuse in that area, decomposition rates, and depth of the refuse in the areas with the red locations points (up to 120 feet of waste material)
- 3 CO Concentrations detected in wells for these areas indicate normal anaerobic decomposition with no oxidation occurring, no readings in excess of 200 parts per million (ppm), the limit set by the EPA Consent Decree, have been detected Methane Concentrations for these wells generally range from 40 to 65%
- 4 In September 2012, a sample from well F12-08 was analyzed for CO by a licensed laboratory to verify the CO concentrations The laboratory results indicate that the sample did not contain detectable concentrations of CO
- 5 Limiting these wellheads to the NSPS temperature requirement of 131 degrees F requires that Forward Inc Landfill reduces, significantly in some cases, the extraction rates on these wells, which inhibits optimal operation of the well field and will result in less LFG being collected Consequences of continuing to operate the wells at a lower temperature include
 - a Wells operating at a reduced vacuum result in reduced LFG extraction rates, which result in a decrease in the removal of residual heat that is generated during the decomposition process This could cause other wells to exhibit elevated temperatures in the future
 - b Limiting well extraction reduces the radius of influence for each well and has led to surface emissions exceedances in the vicinity of the wells Forward Inc Landfill has been able to reduce surface emissions by temporarily increasing the extraction rates for the wells in the affected zones However, the well operating temperature increase due to the increase extraction rates, requiring a reducing in the extraction rate to reduce the temperature, resulting in a cyclic process of increasing/decreasing flow to correct well temperature or surface emissions This inhibits optimal wellfield operation and the landfill gas recovery ability of the system

40 CFR Part 60 Subpart WWW states that the owner may establish a higher operating temperature at a particular well provided there is supporting data that the elevated temperature does not cause fires or significantly inhibit anaerobic decomposition of methanogens

The District will evaluate the request for higher operating temperatures using the following criteria

- 1 Each wellhead will be evaluated independently and the decision to approve or deny a higher operating temperature limit will be determined using the data for that wellhead This is consistent with US EPA Region III's correspondence dated January 11, 2002, which states "Region III believes that exemptions or waivers should be granted on the basis of data for each wellhead" (US EPA Applicability Determination Index Control #0200002)
- 2 There must be no physical evidence of a subsurface fire, such as smoke or subsidence in the area around the wellhead
- 3 Prior to approving a higher operating temperature limit for a wellhead a temperature exceedance shall have occurred and all possible corrections to eliminate the temperature limit exceedance should have been explored This is consistent with the Ohio EPA's Higher Operating Value Demonstrations guidance document and past US EPA practice
- 4 In order to demonstrate that a fire is not causing the high operating temperatures in each wellhead, the measured CO concentrations should be less than 500 ppmv This is consistent with the criteria cited by US EPA Region 4 (EPA Applicability Determination Index Control # 0600081) and the US EPA Consent Decree cited earlier in this evaluation
- 5 In order to demonstrate that a higher operating temperature limit will not inhibit anaerobic digestion in the landfill, the methane concentration should be no lower than 43% by volume and the oxygen concentration should not exceed 5% by volume This is consistent with the criteria cited by US EPA Region 5 (EPA Applicability Determination Index Control # 0800022)

The data submitted for wellheads A11-04, A12-04, A12-05, A12-13S, A12-16, AO65RS, F12-01 F12-02 F12-03, F12-06, F12-11, Top Deck Well 01, Top Deck Well 04, and Top Deck Well 05 indicates that these wells have not exceeded the NSPS limit of 131 degrees F Since the data submitted indicates that these wellheads have not exceeded 131 degrees F, corrective action hasn't been necessary and the District cannot make a determination that all possible corrections to eliminate a temperature limit exceedance have been attempted Therefore these wellheads do not qualify for a higher operating temperature limit at this time This determination doesn't preclude the applicant from submitting a higher operating temperature limit request in the future, in the event that the operating temperatures rise in these wellheads

Wellheads A12-02, A12-03, A12-14, FU05-15R FU04-19R F12-08, F12-09 F12-10 have all experienced temperature exceedances and corrective actions have only been minimally effective for the reasons described by the applicant in their request Therefore criteria #3 from above is satisfied No physical evidence of a subsurface fire around these wellheads has been observed The following table shows the average temperature, average CO concentration, average methane concentration, and average oxygen content measured during the temperature exceedances in these wells

Wellhead	Average Temperature (degrees F)	Average CO (ppmv)	Average CH ₄ (% by volume)	Average O ₂ (% by volume)
A12-02	135 3	90 6	56 9	0
A12-03	134 8	90	55 16	0
A12-14	135 9	99 5	57 6	0
FOFU05-15R	135 2	116 9	53 4	0 2
FOFU04-19R	135 3	50 9	103 7	0 1
F12-08	137 9	72 3	55 3	0
F12-09	134 7	48 0	56 4	0
F12-10	135 3	44 0	55 8	0 1

As demonstrated in the table above, these wells meet the criteria listed in criteria #4 and #5 on the previous page. Additionally, criteria #2 and #3 have been satisfied. Therefore, these wells qualify for a higher operating temperature limit of 141 degrees Fahrenheit.

The following CO monitoring, consistent with the US EPA Consent Decree, will be required for wells that are approved for a higher operating temperature limit:

1. Monthly CO field monitoring will be performed using draeger tubes or a District approved monitoring device, for all wells that show a temperature of 131 degrees F or greater.
2. If the field CO readings are less than 200 ppmv CO, the well may continue to operate up to 141 degrees F.
3. If the field readings are equal or greater than 200 ppmv, but below or equal to 500 ppmv CO, the well will be monitored on a weekly basis to verify that there is no subsurface oxidation occurring. Once the CO levels decrease to below 200 ppmv, monthly monitoring will be resumed.
4. If CO field monitoring results indicate a reading in excess of 500 ppmv CO, the wellhead will be temporarily closed and documented, and a sample will be obtained within one week of the exceedance and analyzed for CO using EPA Method D-1946. If results confirm the readings are in excess of 500 ppmv, the wellhead will remain closed and off-line and the District will be notified within 24 hours of the exceedance.
5. Upon notification of the District and/or EPA, Forward shall undertake such actions as directed by the District and/or EPA to further investigate the potential for subsurface oxidation in the area of the well and develop a plan for remediation.

The following conditions will be included on the draft Authority to Construct permit

- *For LFG extraction wellheads A11-05, A11-06, A11-07, A11-08, A11-09, A11-10, A11-11, A12-02, A12-03, A12-14, F12-08, F12-09, F12-10, FU03-01R, FU04-14R, FU04-15R, FU04-18R, FU04-19R, FU04-27R, FU04-27R, FU05-08R, FU05-10R, FU05-15R, FU06-15, FU06-16, FU-08-02, and FU08-03, the permittee shall operate each of these wellheads with a landfill gas temperature less than 141 degrees F and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The following monitoring requirements are applicable to these wellheads: 1) The permittee shall perform monthly CO monitoring using Draeger tubes, or a District/EPA approved monitoring device, for wellheads with a measured temperature greater than 131 degrees F; 2) If the measured field CO readings are less than 200 ppmv, the well may continue to operate up to a temperature less than 141 degrees F; 3) If the measured field CO readings are equal to or greater than 200 ppmv and less than or equal to 500 ppmv, the well shall be monitored on a weekly basis to verify that there is no subsurface oxidation occurring. Once the CO levels decrease to below 200 ppmv, the monthly monitoring schedule shall resume; 4) If the measured field CO readings are in excess of 500 ppmv, the well shall be temporarily closed and documented and a sample shall be obtained within one week of the exceedance and analyzed for CO using EPA Method D-1946. If results confirm the readings are in excess of 500 ppmv, the well shall remain closed and off-line and the District shall be notified within 24 hours of the exceedance; and 5) Upon receiving notification from the District, the permittee shall undertake such actions as directed by the District and/or EPA to further investigate the potential for subsurface oxidation in the area of a wellhead and develop a plan for remediation. [40 CFR 60.753(c) and 40 CFR 63 Subpart AAAA]*
- *The permittee may request an alternative gas temperature limit for LFG extraction wellheads by submitting a request in writing to US EPA and the District. Any such request shall contain all available sampling and other evidence relevant to EPA's and the District's consideration of the request, including, but not limited to, the existence of suspected or actual subsurface combustion. After considering the request, EPA and the District will either grant the request or deny it, in writing. If EPA and the District grant the request for an alternative wellhead gas temperature limit for an existing wellhead, the alternative approved limit shall immediately supersede the previously applicable limit and become the new temperature limit for that wellhead. [40 CFR 60.753(c) and 40 CFR 63 Subpart AAAA]*

IX Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct permit N-339-17-13 subject to the permit conditions on the attached draft Authority to Construct permit in Appendix I.

X Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Previous Fee Schedule
N-339-17-13	3020-02-H	162 MMBtu/hr	3020-02-H

Appendices

- I Draft Authority to Construct Permit
- II Authority to Construct N-339-17-10
- III Copy of EPA Consent Decree
- IV Landfill Greenhouse Gas Emission Calculations
- V Quarterly Net Emission Change Calculations
- VI Applicant's Request to Increase Wellhead Temperature Limits
- VII Facility Comments and District Response

APPENDIX I

Draft Authority to Construct Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO N-339-17-13

LEGAL OWNER OR OPERATOR FORWARD INC LANDFILL
MAILING ADDRESS 9999 S AUSTIN RD
MANTECA CA 95336

LOCATION 9999 S AUSTIN ROAD
MANTECA CA 95336

EQUIPMENT DESCRIPTION

MODIFICATION OF 13.8 MILLION CUBIC YARD CAPACITY (218 ACRES) LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM CONTROLLED BY A 2000 SCFM (EQUIVALENT TO 48.0 MMBTU/HR) ENCLOSED FLARE AND CARBON ADSORPTION SYSTEM (CAS) AND A 3400 SCFM (EQUIVALENT TO 102 MMBTU/HR) PERRENIAL ENERGY MODEL GHS 301 LFG FIRED ENCLOSED FLARE WITH LPG PILOT TO INCORPORATE THE REQUIREMENTS OF EPA CONSENT DECREE CASE NO 2 11 CV 00590 EFB AND TO CORRECT THE EQUIPMENT DESCRIPTION SUCH THAT THE POST PROJECT EQUIPMENT DESCRIPTION BECOMES 39.0 MILLION CUBIC METER CAPACITY (354.5 ACRES) LANDFILL WITH A LANDFILL GAS COLLECTION SYSTEM CONTROLLED BY A 2 000 SCFM (EQUIVALENT TO 60 MMBTU/HR) ENCLOSED LANDFILL GAS FIRED FLARE AND A 3 400 SCFM (EQUIVALENT TO 102 MMBTU/HR) PERRENIAL ENERGY MODEL GHS 301 ENCLOSED LANDFILL GAS-FIRED FLARE WITH AN LPG FIRED PILOT

CONDITIONS

- 1 {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c) [District Rule 2201] Federally Enforceable Through Title V Permit
- 2 {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4 [District Rule 2520 5.3.4] Federally Enforceable Through Title V Permit
- 3 All equipment shall be constructed, maintained, and operated according to the specifications and plans contained in the permit applications except as otherwise specified herein [District Rule 2201] Federally Enforceable Through Title V Permit
- 4 The enclosed flares shall each be equipped with an LPG or natural gas fired pilot [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557 6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services

N 339 7 13 D 10 2013 1 17 AM - HARADERJ Jo R Insp Ion R q d with HARADERJ

- 5 The enclosed flares shall each be equipped with automatic dampers, an automatic shutdown device and a flame arrester [District Rule 2201] Federally Enforceable Through Title V Permit
- 6 The gas collection system shall be operated in a manner which maximizes the quantity of landfill gas extracted while preventing overdraw that can cause fires or damage the gas collection system [District Rule 2201] Federally Enforceable Through Title V Permit
- 7 During maintenance of the gas collection system or flares, emissions of landfill gas shall be minimized [District Rule 2201] Federally Enforceable Through Title V Permit
- 8 Maintenance is defined as work performed on a gas collection system and/or control device in order to ensure continued compliance with District Rules, Regulations, and /or Permits to Operate, and to prevent its failure or malfunction [District Rule 2201] Federally Enforceable Through Title V Permit
- 9 The landfill gas collected by the landfill gas collection system shall be controlled by at least one of the following devices 1) The 60 MMBtu/hr flare 2) the 102 MMBtu/hr flare and/or 3) The siloxane removal system and one of the IC engines permitted under Facility ID N 8573 Each device shall be operated at all times when the collected gas is routed to it [District Rule 2201 and 40 CFR 60 752(b)(2)(iii)(B), 40 CFR 60 753(f) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 10 The influent landfill gas flow rate to the 60 MMBtu/hr flare shall not exceed 2 000 SCFM (corrected to 50% methane) [District Rule 2201] Federally Enforceable Through Title V Permit
- 11 The influent landfill gas flow rate to the 102 MMBtu/hr flare shall not exceed 3 400 SCFM (corrected to 50% methane) [District Rule 2201] Federally Enforceable Through Title V Permit
- 12 The VOC destruction efficiency for the 60 MMBtu/hr flare shall be at least 98% by weight or the maximum non methane organic compound NMOC emissions from the flare shall not exceed 20 ppmv @ 3% O₂ (as hexane) [District Rule 2201, 40 CFR 60 752(b)(2)(iii)(B) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 13 The VOC destruction efficiency for the 102 MMBtu/hr flare shall be at least 98% by weight or the maximum non-methane organic compound NMOC emissions from the flare shall not exceed 20 ppmv @ 3% O₂ (as hexane) [District Rule 2201, 40 CFR 60 752(b)(2)(iii)(B) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 14 Emissions from the 60 MMBtu/hr flare shall not exceed any of the following limits 0 05 lb NO_x/MMBtu 0 0215 lb SO_x/MMBtu 0 034 lb PM₁₀/MMBtu 0 2 lb-CO/MMBtu and 0 0113 lb VOC/MMBtu (equivalent to 20 ppmvd VOC as Hexane @ 3% O₂) [District Rule 2201] Federally Enforceable Through Title V Permit
- 15 Emissions from the 102 MMBtu/hr flare shall not exceed any of the following limits 0 05 lb-NO_x/MMBtu 0 0215 lb-SO_x/MMBtu, (0 001 lb PM₁₀/hr)/scfm methane 0 2 lb CO/MMBtu, and 0 0113 lb VOC/MMBtu (equivalent to 20 ppmvd VOC as Hexane @ 3% O₂) [District Rule 2201] Federally Enforceable Through Title V Permit
- 16 The volume of soil used for intermediate and final cover shall not exceed 61 768 080 cubic feet [District Rule 2201] Federally Enforceable Through Title V Permit
- 17 PM₁₀ emissions from the placement of the intermediate and final soil cover shall not exceed 0 008 lb/ton of soil The volume of soil shall be converted to tons of soil using a soil density of 120 lb/cubic foot [District Rule 2201] Federally Enforceable Through Title V Permit
- 18 The H₂S concentration of the influent landfill gas to the flares shall not exceed 46 9 ppmv [District Rule 2201] Federally Enforceable Through Title V Permit
- 19 For each flare, source testing to demonstrate compliance with the NO_x (lb/MMBtu) CO (lb/MMBtu) and VOC (98% destruction efficiency or 20 ppmvd VOC @ 3% O₂ as hexane) requirements of this permit shall be conducted at least once every 12 months [District Rules 1081 and 2201] Federally Enforceable Through Title V Permit
- 20 Source testing for NO_x shall be conducted using CARB Method 7 or CARB Method 20 [District Rules 1081 and 2201] Federally Enforceable Through Title V Permit
- 21 Source testing for CO shall be conducted using EPA Method 10 or 10B, CARB Methods 1 through 5 with CARB Method 10, or CARB Method 100 [District Rules 1081 and 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

- 22 VOC emissions shall be conducted using EPA Method 18, 25, 25A or 25C [District Rules 1081 and 2201] Federally Enforceable Through Title V Permit
- 23 Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing [District Rule 1081]
- 24 The results of each source test shall be submitted to the District within 60 days thereafter [District Rule 1081] Federally Enforceable Through Title V Permit
- 25 The combustion chamber of each flare shall be maintained at a temperature of at least 1,400 degrees Fahrenheit during operation [District Rule 2201] Federally Enforceable Through Title V Permit
- 26 Each flare shall be equipped with a temperature indicator and recorder that measures and continuously records the operating temperature [District Rule 2201] Federally Enforceable Through Title V Permit
- 27 For each flare the facility shall install and maintain in proper operating condition a gas flow meter with a continuous recording device that measures the quantity of landfill gas processed each day [District Rule 2201] Federally Enforceable Through Title V Permit
- 28 Permittee shall perform testing to measure the H₂S content of the landfill gas combusted in the flares on a quarterly basis using draeger tubes. If compliance with the landfill gas H₂S content limit is demonstrated for two consecutive quarters this testing frequency may be changed to annual. Quarterly testing shall resume if any annual test shows non compliance with the H₂S content limit [District Rule 2201] Federally Enforceable Through Title V Permit
- 29 The landfill gas collection system shall be designed and operated to:
1) Handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment
2) Collect gas from each area, cell or group of cells in the landfill in which the initial solid waste has been placed for a period of five years or more for an active landfill, or 2 years or more for a closed landfill or landfill at final grade
3) Collect gas at a sufficient extraction rate, and
4) Minimize off-site migration of subsurface gas [40 CFR 60.752(b)(2)(ii)(A), 40 CFR 60.753(a) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 30 All exterior vapor extraction wells, leachate collection system components, and perimeter horizontal collectors shall not be located over any waste and are exempt from the operational standards of 40 CFR 60.753 and the compliance provisions of 40 CFR 60.755. Forward Inc. shall keep records of all components that qualify for this exemption and note their location with respect to the landfill's perimeter [40 CFR 60.752(b)(2)(ii), 60.753, 60.755, 60.756, 60.757, 60.758, 60.759, and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 31 Permittee shall operate the landfill gas collection system with negative pressure at each wellhead except under the following conditions:
1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports provided in 40 CFR 60.757(f)(1).
2) Use of a geomembrane or synthetic cover. The owner shall develop acceptable pressure limits in the design plan.
3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the District [40 CFR 60.753(b) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 32 Unless otherwise stated on this permit, the permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent [40 CFR 60.753(c) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 33 For each interior wellhead, the nitrogen level shall be determined using EPA Method 3C, unless an alternative test method is established as allowed by 40 CFR 60.752(b)(2)(i), [40 CFR 60.753(c)(1) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit

DRAFT

CONDITIONS CONTINUE ON NEXT PAGE

- 34 For each interior wellhead, unless an alternative test method is established as allowed by 40 CFR 60 752(b)(2)(i) the oxygen level shall be determined by an oxygen meter using EPA Method 3A or 3C except that 1) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span 2) A data recorder is not required 3) Only two calibration gases are required, a zero and span, and ambient air may be used as the span, 4) A calibration check is not required, and 5) The allowable sample bias zero drift and calibration drift are plus or minus 10 percent [40 CFR 60 753(c)(2) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 35 Permittee shall operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover on at least a quarterly basis Permittee may establish an alternative traversing pattern that ensures equivalent coverage A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site specific deviations from the 30 meter intervals Areas with steep slopes or other dangerous areas may be excluded from the surface testing [40 CFR 60 753(d) 40 CFR 60 755, and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 36 Permittee shall operate the landfill gas collection and control system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60 752(b)(2)(iii) In the event the collection system or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to the venting of the gas to the atmosphere shall be closed within one hour [40 CFR 60 753(e) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 37 If monitoring demonstrates that the operational requirements in 40 CFR 60 753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60 755(a)(3) through (5) or 40 CFR 60 755(c) If corrective actions are taken as specified in 40 CFR 60 755 the monitored exceedance is not a violation of the operational requirements in 40 CFR 60 753 [40 CFR 60 753(g) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 38 For the purpose of demonstrating that the gas collection system is designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control system permittee shall use one of the equations that are listed in 40 CFR 60 755(a)(1) [40 CFR 60 755(a)(1) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 39 For the purpose of determining whether there is a sufficient density of gas collectors, permittee shall design a system of vertical wells horizontal collectors or other collection devices satisfactory to the District, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards [40 CFR 60 755(a)(2) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 40 For the purpose of demonstrating whether the landfill gas collection system flow rate is sufficient the owner or operator shall measure gauge pressure in the gas collection system header at each individual well on a monthly basis Except in cases where the conditions allow the wellhead to operate without a negative pressure (as outlined in this permit), action shall be initiated to correct the exceedance within 5 calendar days if a positive pressure exists If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of a positive pressure Any attempted corrective measure shall not cause exceedances or other operational or performance standards An alternative timeline for correcting the exceedance may be submitted to the District for approval Expansion of the collection system during the first 180 days after gas collection system startup is not required [40 CFR 60 755(a)(3) 60 755(a)(4), and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 41 For the purpose of identifying whether excess air infiltration into the landfill is occurring, the permittee shall monitor the temperature and nitrogen or oxygen on a monthly basis If a well exceeds one of the temperature nitrogen, or oxygen operating parameters of this permit, action shall be initiated to correct the exceedance within five calendar days If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance Any attempted corrective measure shall not cause exceedances of other operational or performance standards An alternative timeline for correcting the exceedance may be submitted to the District for approval [40 CFR 60 755(a)(5) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit

DRAFT

CONDITIONS CONTINUE ON NEXT PAGE

- 42 Extraction wells shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of 1) 5 years or more for an active landfill 2) 2 years or more for a closed landfill or a landfill at final grade [40 CFR 60 755(b) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 43 Monitoring to determine the surface concentration of methane shall be conducted using an organic vapor analyzer flame ionization detector, or other portable monitor meeting the specifications of 40 CFR 60 755(d) [40 CFR 60 755(c)(1), 40 CFR 60 755(d) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 44 The background concentration of methane shall be determined by moving the probe inlet upwind and downwind the outside boundary of the landfill at a distance of at least 30 meters from the perimeter walls [40 CFR 60 755(c)(2) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 45 Surface monitoring of the methane concentration shall be performed in accordance with Section 4.3.1 of EPA Method 21 of Appendix A of 40 CFR except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions [40 CFR 60 755(c)(3) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 46 Any surface monitoring reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the following actions shall be taken. As long as the following specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60 753(d): 1) The location of each monitored exceedance shall be marked and the location recorded, 2) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection of the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance, 3) If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If re-monitoring shows a third exceedance, the action specified in item #5 of this condition shall be taken, and no further monitoring of that location is required until the action specified in item #5 has been taken, 4) Any location that initially showed an exceedance but has a methane concentration of less than 500 ppm above background at the 10 day re-monitoring shall be re-monitored 1 month from the initial exceedance. If the 1 month re-monitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1 month re-monitoring shows an exceedance, the actions specified in item #3 or item #5 of this condition shall be taken, and 5) For any location where the monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes, or control device and a corresponding timeline for installation may be submitted to the District for approval [40 CFR 60 755(c)(4) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 47 Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis [40 CFR 60 755(c)(5) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 48 The requirements of 40 CFR 60 Subpart WWW shall apply at all times, except during periods of start up, shutdown, or malfunction. The duration of start up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices [40 CFR 60 755(e) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 49 Permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead [40 CFR 60 756(a) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 50 For each enclosed flare, permittee shall calibrate, maintain, and operate according to the manufacturer's specifications a temperature monitoring device to measure temperature in the enclosed flare with a minimum accuracy of plus or minus 1 percent of the temperature being measured, expressed in degrees Celsius, or plus or minus 0.5 degrees Celsius, whichever is greater [40 CFR 60 756(b)(1) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit

DRAFT

CONDITIONS CONTINUE ON NEXT PAGE

- 51 For each enclosed flare, permittee shall calibrate, maintain and operate according to the manufacturer's specifications a device that records flow to or bypass of the control device Permittee shall either 1) Install calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least once every 15 minutes or 2) shall secure the bypass line valve in the closed position with a car seal or a lock and key type configuration A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in a closed position and that the gas flow is not diverted through the bypass line [40 CFR 60 756(b)(2) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 52 For a closed landfill that has no monitored exceedances of the standard for surface concentrations of methane in three consecutive quarterly monitoring periods may skip to annual monitoring Any methane reading of 500 ppm or more above background detected during the annual monitoring shall return the frequency of monitoring of surface concentrations to quarterly monitoring [40 CFR 60 756(e) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 53 The permittee shall submit a closure report to the District within 30 days of waste acceptance cessation The District may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258 60 If a closure report has been submitted to the District, no additional waste may be placed into the landfill without filing a notification of modification as described on 40 CFR 60 7(a)(4) [40 CFR 60 757(d) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 54 Permittee shall submit a report to the District, at least once every six months, that contains the following 1) Value and length of time for each exceedance of applicable parameters monitored under 40 CFR 60 756(a), (b) (c) and (d), 2) Description of duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60 756 3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time control device was not operating 4) All periods when the control system was not operating in excess of five days, 5) The location of each exceedance of the 500 parts per million methane concentration as provided in 40 CFR 60 753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month, and 6) The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60 755(a)(3), (b) and (c)(4) [40 CFR 60 757(f) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 55 Permittee shall keep records of the design capacity report which triggered 40 CFR 60 752(b) requirements the current amount of solid waste in place, and the year by year waste acceptance rate [40 CFR 60 758(a) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 56 Permittee shall keep records of the following data as measured during the initial performance test or compliance determination 1) The maximum expected gas generation flow rate as calculated per 40 CFR 60 755(a)(1), 2) The density of wells, horizontal collectors, surface collectors or other gas extraction devices as determined using the procedures specified in 40 CFR 60 759(a)(1) 3) For each enclosed flare, the average combustion temperature measured at least every 15 minutes and averaged over the same time period for the source test and 4) For each enclosed flare the percent reduction of NMOC determined as specified in 40 CFR 60 752(b)(2)(iii)(B) [40 CFR 60 758(b)(1) and (2) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 57 Permittee shall keep continuous records of the equipment operating parameters specified to be monitored in 40 CFR 60 756 as well as up to date records of operation during with the parameter boundaries established during the most recent performance tests are exceeded For each enclosed flare all 3 hour periods of operation during with the average combustion temperature was more than 28 degree Celsius below the average combustion temperature during the most recent performance test shall constitute an exceedance and shall be recorded and reported under 40 CFR 60 757(f) [40 CFR 60 758(c) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit
- 58 Permittee shall keep, for the life of the collection system, a plot map showing each existing and planned collector in the system and providing a unique identification location label of each collector Permittee shall keep records of the installation date and location of all newly installed collectors as specified under 40 CFR 60 755(b) Permittee shall keep records of the date of disposition, amount and location of asbestos containing or non degradable waste excluded from collection as provided in 40 CFR 60 759(a)(3)(i) as well as any non productive areas excluded from collection as provided in 40 CFR 60 759(a)(3)(ii) [40 CFR 60 758(d) and 40 CFR 63 Subpart AAAAA] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

- 59 Permittee shall keep records of all collection and control system exceedances of the operational standards in 40 CFR 60 753 the reading in the subsequent month and whether or not the second reading is an exceedance, and the location of each exceedance [40 CFR 60 758(e) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 60 Permittee shall site active collection wells, horizontal collectors, surface collectors, and other extraction devices at a sufficient density throughout all gas producing areas of the landfill using the procedures listed in 40 CFR 60 759(a) unless alternative procedures have been approved by the District [40 CFR 60 759(a) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 61 The collection devices within the landfill interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer The following issues shall be addressed in the design depths of refuse, refuse gas generation rates and flow characteristics, cover properties gas system expandability, leachate and condensate management accessibility, compatibility with filling operations, integration with closure end use air intrusion control corrosion resistance, fill settlement, and resistance to the refuse decomposition heat The design shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter and exterior [40 CFR 60 759(a)(1) and (2) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 62 The placement of gas collection devices shall control all gas producing areas except the following 1) Any segregated area of asbestos or non degradable material may be excluded from collection if documented as provided in 40 CFR 60 758(d) The documentation shall provide the nature date of disposition location and amount of asbestos or non degradable material deposited in the area, and shall be provided to the District upon request 2) Any nonproductive area of the landfill may be excluded from control, provided the total of all excluded areas can be shown to contribute to less than 1 percent of the total amount of non-methane organic compound emissions from the landfill [40 CFR 60 759(a)(3) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 63 The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to convey projected amounts of gases, withstand installation, static, and settlement forces, and withstand planned overburden or traffic loads The collection system shall extend as necessary to comply with emission and migration standards Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control Perforations shall be situated with regard to the need to prevent excessive air infiltration [40 CFR 60 759(b)(1) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 64 Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross section so as to allow for their proper construction and completion Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover area or refuse into the collection system or gas into the air Any gravel used around pipe perforations shall be of a dimension so as not to penetrate or block perforations [40 CFR 60 759(b)(2) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 65 Collection devices may be connected to the collection header pipes below or above the landfill surface The connector assembly shall include a positive closing throttle valve any necessary seals and couplings access couplings and at least one sampling port The collection devices shall be constructed of PVC HDPE fiberglass stainless steel or other nonporous materials of suitable thickness [40 CFR 60 759(b)(3) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 66 Permittee shall convey the landfill gas to the control system through the collection header pipes The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended period of gas moving equipment For existing collection systems, the flow data if flow data exists, shall be used to project the maximum flow rate For new collection systems or existing collection systems for which no flow data exists the maximum flow rate shall be in accordance with 40 CFR 60 755(a)(1) [40 CFR 60 759(c) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 67 Permittee shall develop a written SSM plan according to the provisions of 40 CFR 63 6(e)(3) A copy of the SSM plan shall be maintained on site Failure to write or maintain a copy of the SSM plan is a deviation from the requirements of 40 CFR 63 Subpart AAAA [40 CFR 63 1960] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

- 68 For parameters required to be continuously monitored by 40 CFR 60 Subpart WWW, a deviation of 40 CFR 63 Subpart AAAA shall be deemed to have occurred when 1 hour or more of the hours during the 3-hour block averaging period does not constitute a valid hour of data. A valid hour of data must have measured values for at least three 15 minute monitoring periods within the hour [40 CFR 63 1965(b)] Federally Enforceable Through Title V Permit
- 69 Permittee shall keep records and reports as specified in the general provisions of 40 CFR Part 60 and 40 CFR Part 63, as shown in Table 1 of 40 CFR part 63 Subpart AAAA [40 CFR 63 1980(b)] Federally Enforceable Through Title V Permit
- 70 For LFG extraction wellheads A11-05, A11-06, A11-07, A11 08 A11 09 A11 10 A11 11, A12 02, A12 03 A12 14 F12-08, F12 09, F12 10 FU03 01R, FU04 14R, FU04 15R, FU04 18R, FU04-19R FU04-27R, FU04 27R, FU05 08R FU05 10R, FU05 15R, FU06 15, FU06-16, FU 08-02, and FU08 03, the permittee shall operate each of these wellheads with a landfill gas temperature less than 141 degrees F and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The following monitoring requirements are applicable to these wellheads: 1) The permittee shall perform monthly CO monitoring using Draeger tubes or a District/EPA approved monitoring device, for wellheads with a measured temperature greater than 131 degrees F, 2) If the measured field CO readings are less than 200 ppmv the well may continue to operate up to a temperature less than 141 degrees F, 3) If the measured field CO readings are equal to or greater than 200 ppmv and less than or equal to 500 ppmv the well shall be monitored on a weekly basis to verify that there is no subsurface oxidation occurring. Once the CO levels decrease to below 200 ppmv, the monthly monitoring schedule shall resume, 4) If the measured field CO readings are in excess of 500 ppmv the well shall be temporarily closed and documented and a sample shall be obtained within one week of the exceedance and analyzed for CO using EPA Method D 1946. If results confirm the readings are in excess of 500 ppmv the well shall remain closed and off-line and the District shall be notified within 24 hours of the exceedance, and 5) Upon receiving notification from the District, the permittee shall undertake such actions as directed by the District and/or EPA to further investigate the potential for subsurface oxidation in the area of a wellhead and develop a plan for remediation [40 CFR 60 753(c) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 71 The permittee may request an alternative gas temperature limit for LFG extraction wellheads by submitting a request in writing to US EPA and the District. Any such request shall contain all available sampling and other evidence relevant to EPA's and the District's consideration of the requesting, including but not limited to, the existence of suspected or actual subsurface combustion. After considering the request, EPA and the District will either grant the request or deny it, in writing. If EPA and the District grant the request for an alternative wellhead gas temperature limit for an existing wellhead, the alternative approved limit shall immediately supersede the previously applicable limit and become the new temperature limit for that wellhead [40 CFR 60 753(c) and 40 CFR 63 Subpart AAAA] Federally Enforceable Through Title V Permit
- 72 Permittee shall keep records of any maintenance to the landfill gas collection or control devices, including the reason for maintenance, duration of the maintenance, and any collection or control system downtime [District Rule 2201] Federally Enforceable Through Title V Permit
- 73 Permittee shall maintain records of system inspections including date, time, and inspection results [District Rule 1070] Federally Enforceable Through Title V Permit
- 74 For each flare, permittee shall keep records of emission source tests results [District Rule 2201] Federally Enforceable Through Title V Permit
- 75 For each flare, permittee shall keep records of the continuous flare combustion temperature measurements, and the continuous volumetric landfill gas flow rate measurements. Permittee shall keep a daily and an annual record of the quantity of landfill gas processed in each flare [District Rule 2201] Federally Enforceable Through Title V Permit
- 76 All records shall be retained for a period of at least five years and shall be made available for District inspection upon request [District Rules 1070, 2201, 40 CFR 60 Subpart WWW, and 40 CFR 60 Subpart AAAA] Federally Enforceable Through Title V Permit
- 77 The permittee shall notify the District by telephone at least 24 hours prior to performing any maintenance work that requires the landfill gas collection and control system to be shutdown. The notification shall include a description of the work, the date work will be performed, and the quantity of time needed to complete the maintenance work [District Rule 2201] Federally Enforceable Through Title V Permit

APPENDIX II

Authority to Construct N-339-17-10

INSPECTION
ISSUANCE DATE 05/14/2007
WORKSHEET

LEGAL OWNER OR OPERATOR FORWARD INC LANDFILL
MAILING ADDRESS 9999 S AUSTIN RD
MANTECA CA 95336

LOCATION 9999 S AUSTIN ROAD
MANTECA CA 95336

INSPECT PROGRAM PARTICIPANT NO

EQUIPMENT DESCRIPTION

MODIFICATION OF 13.8 MILLION CUBIC YARDS CAPACITY (218 ACRES) WITH LANDFILL GAS COLLECTION SYSTEM CONTROLLED BY A 2,000 SCFM (EQUIVALENT TO 48 MMBTU/HR) ENCLOSED FLARE. INCREASE PERMITTED LFG FLOWRATE FOR THE EXISTING FLARE FROM 1,530 CFM TO 2,000 CFM (EQUIVALENT TO 48 MMBTU/HR) FOR 40 CFR SUBPART WWW COMPLIANCE. AND REVISE VOC EMISSION LIMIT TO 20 PPMV AT 3% O₂ OR 98% DESTRUCTION EFFICIENCY FOR THE FLARE. INSTALL A SECOND NEW LANDFILL GAS COLLECTION SYSTEM SERVED BY A 3,400 SCFM (EQUIVALENT TO 102 MMBTU/HR) PERENNIAL ENERGY MODEL GHS 301 LFG FIRED ENCLOSED FLARE WITH LPG PILOT FOR COMPLIANCE WITH 40 CFR 60 SUBPART WWW.

CONDITIONS

- 1 {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c) [District Rule 2201] Federally Enforceable Through Title V Permit
- 2 {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4 [District Rule 2520 5.3.4] Federally Enforceable Through Title V Permit
- 3 All equipment shall be constructed, maintained and operated according to the specifications and plans contained in the permit application except as otherwise specified herein [District NSR Rule] Federally Enforceable Through Title V Permit
- 4 The flare shall maintain a temperature of at least 1,400 degrees F during operation [District NSR Rule] Federally Enforceable Through Title V Permit
- 5 All landfill gas collected shall be controlled by the flare and/or the carbon adsorption system (CAS) [District NSR Rule] Federally Enforceable Through Title V Permit
- 6 Influent LFG flowrate to the 48 MMBtu/hr flare shall not exceed 2,000 scfm @ 50% methane [District Rule 2201] Federally Enforceable Through Title V Permit
- 7 Influent LFG flowrate to the 102 MMBtu/hr flare shall not exceed 3,400 scfm at 50% methane [District Rule 2201]
- 8 The VOC destruction efficiency for the flares shall be at least 98% by weight or maximum NMOC emissions from the flare shall not exceed 20 ppmv @ 3% oxygen (as hexane) [District NSR Rule] Federally Enforceable Through Title V Permit
- 9 The carbon adsorption system (CAS) shall be at least 98% efficient by weight in controlling VOCs from the landfill gas collection system, or NMOC emissions from the CAS shall not exceed 20 ppmv @ 3% oxygen (as hexane) [District Rule 2201] Federally Enforceable Through Title V Permit
- 10 The landfill gas consumption rate for the CAS shall not exceed 300 scf/min [District Rule 2201] Federally Enforceable Through Title V Permit
- 11 The total VOC emissions from the (CAS) shall not exceed 1.5 pounds in any one day [District Rule 2201] Federally Enforceable Through Title V Permit
- 12 A minimum of two carbon canisters which are connected in series shall be utilized for the CAS [District Rule 2201] Federally Enforceable Through Title V Permit

- 13 Sampling ports adequate for extraction of grab samples, measurement of gas flow rate, and use of an FID, PID, or other District-approved VOC detection device shall be provided for both the influent and the effluent gas streams of the CAS [District Rule 1081] Federally Enforceable Through Title V Permit
- 14 Laboratory samples shall be taken at the initial inspection of the CAS, under the supervision of the APCD Inspector. Samples shall be taken from both the influent and the effluent gas stream sampling ports. [District Rule 1081] Federally Enforceable Through Title V Permit
- 15 Measurements to determine the influent and the effluent gas flow rates of the CAS shall be taken at the initial inspection. Flow rate calculations shall be submitted to the District along with the laboratory sample analysis results [District Rule 1081] Federally Enforceable Through Title V Permit
- 16 Initial compliance with VOC emission rate and control efficiency requirements of the CAS shall be demonstrated by the results of the laboratory sample analysis. The results shall be submitted to the District within 60 days of the test [District Rule 1081] Federally Enforceable Through Title V Permit
- 17 Sampling to demonstrate ongoing compliance with the VOC emission rate and control efficiency requirements of the CAS shall be performed at least once per week by sampling both the influent and the effluent gas streams with an FID, PID, or other District-approved VOC detection device [District Rule 1081] Federally Enforceable Through Title V Permit
- 18 If carbon breakthrough is found in the first carbon canister, the second carbon canister shall be moved to the first position and a new or regenerated carbon canister shall be installed to replace the second carbon canister [District Rule 2201] Federally Enforceable Through Title V Permit
- 19 The carbon canisters removed from the system shall be sealed vapor tight [District Rule 2201] Federally Enforceable Through Title V Permit
- 20 Records of the cumulative running time and the measured influent and effluent VOC concentrations of the CAS shall be maintained [District Rule 2201] Federally Enforceable Through Title V Permit
- 21 Carbon canister on condensate storage tank vent shall be inspected monthly for breakthrough with a District approved portable analyzer [District NSR Rule] Federally Enforceable Through Title V Permit
- 22 Emissions from the 48 MMBtu/hr flare shall not exceed any of the following emission limits: 0.05 lb NO_x/MMBtu, 0.0215 lb SO_x/MMBtu, 0.2 lb CO/MMBtu, 0.0113 lb VOC/MMBtu (20 ppmv) or 0.034 lb PM₁₀/MMBtu [District NSR Rule] Federally Enforceable Through Title V Permit
- 23 Emissions from the 102 MMBtu/hr flare shall not exceed any of the following emission limits: 0.05 lb NO_x/MMBtu, 0.0215 lb SO_x/MMBtu, 0.2 lb CO/MMBtu, 0.0113 lb VOC/MMBtu (20 ppmv), or 0.001 lb PM₁₀/scf/hour [District NSR Rule] Federally Enforceable Through Title V Permit
- 24 The facility shall install and maintain in proper operating condition a gas flow meter with a continuous recording device which measures the amount of landfill gas consumed in the flares and the amount of landfill gas controlled by the CAS per day each [District NSR Rule] Federally Enforceable Through Title V Permit
- 25 The flares shall be equipped with a temperature indicator and recorder that measures and records the operating temperature. The temperature indicator and recorder must operate continuously [District NSR Rule] Federally Enforceable Through Title V Permit
- 26 The enclosed flares shall be equipped with automatic dampers, an automatic shutdown device, and a flame arrester [District NSR Rule] Federally Enforceable Through Title V Permit
- 27 The enclosed flares shall be equipped with an LPG or natural gas fired pilot [District NSR Rule] Federally Enforceable Through Title V Permit
- 28 Source testing on the flares shall be performed to demonstrate compliance with the NO_x and CO limits, and the VOC destruction efficiency of 98% or 20 ppmv @ 3% oxygen (as hexane) as required by this permit shall be conducted annually [District NSR Rule] Federally Enforceable Through Title V Permit
- 29 Source testing for NO_x shall be conducted using CARB Method 7 or Method 20 [District Rule 1081] Federally Enforceable Through Title V Permit

INSPECTION
WORKSHEET

- 30 Source testing for CO shall be conducted using EPA Method 10 or 10B, CARB Methods 1 through 5, with 10 or CARB Method 100 [District Rule 1081] Federally Enforceable Through Title V Permit
- 31 VOC emissions shall be measured by EPA Method 18 25/25A, or 25C [District Rule 1081] Federally Enforceable Through Title V Permit
- 32 H2S concentration of the influent landfill gas to the flares shall not exceed 46.9 ppmv [District NSR Rule] Federally Enforceable Through Title V Permit
- 33 Gas combusted in the flares shall be tested for H2S content on a quarterly basis using draeger tubes If compliance is shown for two consecutive quarters, the testing frequency may be changed to annual Quarterly testing shall resume if any annual test shows noncompliance [District Rule 1081] Federally Enforceable Through Title V Permit
- 34 Upon receiving an approved plan for closure, or partial closure, the operator shall modify this operating permit to comply with the requirements of District Rule 4642 [District Rule 4642, 3 2 and 4 1 1] Federally Enforceable Through Title V Permit
- 35 Gas collection system shall be operated in a manner which maximizes the amount of landfill gas extracted while preventing overdraw that can cause fires or damage the gas collection system [District NSR Rule] Federally Enforceable Through Title V Permit
- 36 During maintenance of the gas collection system or incineration device, emissions of landfill gas shall be minimized during shutdown [District NSR Rule] Federally Enforceable Through Title V Permit
- 37 Maintenance is defined as work performed on a gas collection system and/or control device in order to ensure continued compliance with District rules regulations and/or Permits to Operate, and to prevent its failure or malfunction [District NSR Rule] Federally Enforceable Through Title V Permit
- 38 The permittee shall notify the APCO by telephone at least 24 hours before performing any maintenance work that requires the system to be shutdown The notification shall include a description of work, the date work will be performed and the amount of time needed to complete the maintenance work [District NSR Rule] Federally Enforceable Through Title V Permit
- 39 Permittee shall maintain records of system inspections including date time and inspection results [District Rule 1070] Federally Enforceable Through Title V Permit
- 40 Permittee shall maintain records of maintenance related or other collection system and control device downtime including individual well shutdown [District Rule 1070] Federally Enforceable Through Title V Permit
- 41 The operator shall record emission control device source tests (emissions of CO NOx, and VOC) in pounds per MMBtu heat input Operator shall also record VOC destruction/treatment efficiency [District Rule 1081] Federally Enforceable Through Title V Permit
- 42 Annual amount of soil used for intermediate and final covering shall not exceed 1,406 827 cubic yards of soil and PM10 emissions shall not exceed 0 008 lb PM10/ton of soil (using a soil density of 3,240 lbs/cubic yard of soil) Permittee shall keep annual records of the amount of soil used for intermediate and final covering [District NSR Rule] Federally Enforceable Through Title V Permit
- 43 Permittee shall maintain daily and annual records of landfill gas flow rate to the flares [District Rule 1070] Federally Enforceable Through Title V Permit
- 44 All records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request [District Rule 1070] Federally Enforceable Through Title V Permit
- 45 A record of continuous flare combustion temperature continuous volumetric gas flow rate net heating value of landfill gas being combusted, daily average fuel consumption, daily average heat input, and carbon canister inspection shall be maintained, retained on the premises for a period of at least five years and made readily available for District inspection upon request [District NSR Rule] Federally Enforceable Through Title V Permit
- 46 This operating permit may be cancelled with APCO approval when the landfill is closed pursuant to the requirements of this permit, if the landfill is not otherwise subject to the requirements of either 40 CFR part 70 or part 71 and if either 1) it was never subject to the requirement for a control system under 40 CFR 60 752(b)(2) or 2) the owner or operator meets the conditions for control system removal specified in 40 CFR 60 752(b)(2)(v) [40 CFR 60 752(d)] Federally Enforceable Through Title V Permit

- INSPECTION WORKSHEET
- 47 If the landfill is permanently closed a closure notification shall be submitted to the APCO within 30 days of waste disposal cessation. A permanent closure must take place in accordance with 40 CFR 258.60. If a closure report has been submitted, no additional waste may be placed in the landfill without filing a notification of modification to the APCO, pursuant to 40 CFR 60.7(a)(4) [40 CFR 60.752(b)(1)(ii)(B), 60.757(d)]
 - 48 An active collection system shall be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment, collect gas from each area, cell or group of cells in the landfill in which the initial solid waste has been placed for a period of 5 years or more if active or 2 years or more if closed or at final grade collect gas at a sufficient extraction rate, and be designed to minimize off-site migration of subsurface gas [40 CFR 60.752(b)(2)(ii)(A)] Federally Enforceable Through Title V Permit
 - 49 All collected gas shall be routed to a control system designed and operated to reduce the NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume dry basis as hexane at 3 percent oxygen. The reduction efficiency shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in Section 60.754(d) [40 CFR 60.752(b)(2)(iii)(B)] Federally Enforceable Through Title V Permit
 - 50 Permittee shall operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing [40 CFR 60.753(d)] Federally Enforceable Through Title V Permit
 - 51 Compliance with this surface methane operational standard shall be demonstrated using the procedures outlined in 40 CFR 60.755(c) within 180 days of installation and startup of the collection and control system and quarterly thereafter [40 CFR 60.753(d), 40 CFR 60.755(c), and 40 CFR 60.8] Federally Enforceable Through Title V Permit
 - 52 Permittee shall operate the enclosed flare at all times when the collected gas is routed to it [40 CFR 60.753(f)] Federally Enforceable Through Title V Permit
 - 53 Permittee shall operate the landfill gas collection system such that gas is collected from each area cell or group of cells in the MSW landfill in which solid waste has been in place for (1) five years or more if active, or (2) two years or more if closed or at final grade [40 CFR 60.753(a)] Federally Enforceable Through Title V Permit
 - 54 Permittee shall operate the landfill gas collection system with negative pressure at each wellhead except under the following conditions (1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in 60.757(f)(1) (2) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan, (3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the APCO [40 CFR 60.753(b)] Federally Enforceable Through Title V Permit
 - 55 Permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55 C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decompositions by killing methanogens [40 CFR 60.753(c)] Federally Enforceable Through Title V Permit
 - 56 The collection system shall be operated so that the methane concentration is less than 500 parts per million above background at the surface of the landfill, and such that all collected gases are vented to a control system designed and operated in compliance with 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour [40 CFR 60.753(d) (e)] Federally Enforceable Through Title V Permit

INSPECTION
WORKSHEET

- 57 If monitoring demonstrates that the operational requirements in paragraphs (b), (c), or (d) of section 60 753 are not met, corrective action shall be taken as specified in 40 CFR 60 755(a)(3-5) or (c). If corrective actions are taken as specified in 60 755 the monitored exceedance is not a violation of the operational requirements in this section [40 CFR 60 753(g)] Federally Enforceable Through Title V Permit
- 58 For each interior wellhead the nitrogen level shall be determined using Method 3C unless an alternative test method is established as allowed by 60 752(b)(2)(i) of this subpart [40 CFR 60 753(c)(1)] Federally Enforceable Through Title V Permit
- 59 For each interior wellhead, unless an alternative test method is established as allowed by 60 752(b)(2)(i) of this subpart, the oxygen shall be determined by an oxygen meter using Method 3A or 3C except that (i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span (ii) A data recorder is not required, (iii) Only two calibration gases are required a zero and span, and ambient air may be used as the span (iv) A calibration error check is not required (v) The allowable sample bias, zero drift, and calibration drift are ± 10 percent [40 CFR 60 753(c)(2)] Federally Enforceable Through Title V Permit
- 60 Permittee shall calculate the NMOC emission rate for purposes of determining when the collection and control system can be removed as provided in 40 CFR 60 752(b)(2)(v) by using the equation found in 40 CFR 60 754(b) [40 CFR 60 754(b)] Federally Enforceable Through Title V Permit
- 61 For the performance test required in 60 752(b)(2)(iii)(B), Method 25, 25C, or Method 18 of Appendix A must be used to determine compliance with the 98 weight percent efficiency or the 20 ppmv outlet concentration level unless another method to demonstrate compliance has been approved by the APCO as provided by 60 752(b)(2)(i)(B) Method 3 or 3A shall be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25 If using Method 18 of appendix A the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP 42) The following equation shall be used to calculate efficiency $(\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / \text{NMOC}_{\text{in}}$ The District must be notified at least 30 days prior to any compliance source test and a source test plan must be submitted for approval at least 15 days prior to testing [District Rule 1081 40 CFR 60 754(d)] Federally Enforceable Through Title V Permit
- 62 For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 60 752(b)(2)(ii)(A)(1) one of the equations in Section 60 755(a)(1)(i) or (ii) or (iii) shall be used [40 CFR 60 755(a)(1)] Federally Enforceable Through Title V Permit
- 63 For the purposes of determining sufficient density of gas collectors for compliance with 60 752(b)(2)(ii)(A)(2) the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices satisfactory to the APCO, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards [40 CFR 60 755(a)(2)] Federally Enforceable Through Title V Permit
- 64 For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 60 752(b)(2)(ii)(A)(3) the owner or operator shall measure gauge pressure in the gas collection header at each individual well monthly If a positive pressure exists action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under 60 753(b) If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure Any attempted corrective measure shall not cause exceedances of other operational or performance standards An alternative timeline for correcting the exceedance may be submitted to the APCO for approval [40 CFR 60 755(a)(3)] Federally Enforceable Through Title V Permit
- 65 Owners or operators are not required to expand the system as required in paragraph 60 755(a)(3) during the first 180 days after gas collection system startup [40 CFR 60 755(a)(4)] Federally Enforceable Through Title V Permit

INSPECTION
MONITORING

- 66 For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in 60 753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedance of other operational or performance standards. An alternative time line for corrected in the exceedance may be submitted to the APCO for approval [40 CFR 60 755(a)(5)] Federally Enforceable Through Title V Permit
- 67 The provisions of this subpart apply at all times, except during periods of start up, shutdown or malfunction, provided that the duration of start up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices [40 CFR 60 755(e)] Federally Enforceable Through Title V Permit
- 68 Surface testing shall be performed on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 60 755(d) [40 CFR 60 755(c)(1)] Federally Enforceable Through Title V Permit
- 69 The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells [40 CFR 60 755(c)(2)] Federally Enforceable Through Title V Permit
- 70 Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions. Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in 40 CFR 60 755(c)(4)(i-v) shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of 60 753(d) [40 CFR 60 755(c)(3), (4)] Federally Enforceable Through Title V Permit
- 71 Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis [40 CFR 60 755(c)(5)] Federally Enforceable Through Title V Permit
- 72 The portable analyzer shall meet the instrument specifications of Method 21, section 3 (except that "methane" shall replace all references to VOC). The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air. To meet the performance evaluation requirements of Method 21, section 3.1.3, the instrument evaluation procedures of Method 21, section 4.4 shall be used. The calibration procedures provided in Method 21, section 4.2 shall be followed immediately before commencing a surface monitoring survey. The provisions of this condition apply at all times, except during periods of start up, shutdown or malfunction which shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices [40 CFR 60 755(d), (e)] Federally Enforceable Through Title V Permit
- 73 Each wellhead shall have a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements [40 CFR 60 756(a)] Federally Enforceable Through Title V Permit
- 74 The enclosed flare shall be equipped with a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured, expressed in degrees Celsius or ± 0.5 degrees Celsius, whichever is greater [District NSR Rule 40 CFR 60 756(b)(1)] Federally Enforceable Through Title V Permit
- 75 The enclosed flare shall be equipped with either a device that records flow to the control device. The owner or operator shall install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes [40 CFR 60 756(b)(2)] Federally Enforceable Through Title V Permit
- 76 Operator shall measure the gauge pressure in the gas collection header on a monthly basis as provided in \pm 60 755(a)(3) and monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in \pm 60 755(a)(5), and monitor temperature of the landfill gas on a monthly basis as provided in \pm 60 755(a)(5) [40 CFR 60 756(a)] Federally Enforceable Through Title V Permit
- 77 Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring [40 CFR 60 756(f)] Federally Enforceable Through Title V Permit

- INSPECTION WORKSHEET
- 78 Each owner or operator shall keep for at least 5 years up-to-date, readily accessible, on-site records of the maximum design capacity, the current amount of solid waste in place, and the year by-year waste acceptance rate. Off site records may be maintained if they are retrievable within 4 hours. [40 CFR 60 758(a) and District Rule 2520, 9 4 2] Federally Enforceable Through Title V Permit
 - 79 The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system, and shall include the initial performance test report required under 40 CFR 60 757(f) (g). The initial report shall include information specified in 40 CFR 60 757(g)(1 6) [40 CFR 60 757(f) (g)] Federally Enforceable Through Title V Permit
 - 80 The following constitute exceedances that shall be recorded and reported under 40 CFR 60 757(f) all 3 hour periods of operation during which the average combustion temperature was more than 28 °C below the average combustion temperature during the most recent performance test (flare source test) [40 CFR 60 758(c)] Federally Enforceable Through Title V Permit
 - 81 Except as provided in 60 752(b)(2)(i)(B) each owner or operator of a controlled landfill shall keep up to-date readily accessible records for the life of the control equipment of the data listed in paragraphs 60 758(b)(1) through (b)(4) as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal [40 CFR 60 758(b)] Federally Enforceable Through Title V Permit
 - 82 Permittee shall keep the following records (i)(i) the maximum expected gas generation flow rate as calculated in 60 755(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate if the method has been approved by the APCO (ii) the density of wells horizontal collectors surface collectors, or other gas extraction devices determined using the procedures specified in 60 759(a)(1), (2)(i) the average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test (ii) the percent reduction of NMOC determined as specified in 60 752(b)(2)(i)(B) achieved by the control device [40 CFR 60 758(b)(1) and (2)] Federally Enforceable Through Title V Permit
 - 83 Permittee shall keep up-to date, readily accessible continuous records of the indication of flow to the enclosed flare [40 CFR 60 758(c)] Federally Enforceable Through Title V Permit
 - 84 Except as provided in 60 752(b)(2)(i)(B) permittee shall keep for the life of the collection system an up-to date readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector. Permittee shall keep readily accessible documentation of the nature, date of deposition amount and location of asbestos containing or nondegradable waste excluded from collection as well as any nonproductive areas excluded from collection [40 CFR 60 758(d)] Federally Enforceable Through Title V Permit
 - 85 Except as provided in 60 752(b)(2)(i)(B) permittee shall keep for at least 5 years up to date, readily accessible records of all collection and control system exceedances of the operational standards in 60 753 the reading in the subsequent month whether or not the second reading is an exceedance and the location of each exceedance [40 CFR 60 758(e)] Federally Enforceable Through Title V Permit
 - 86 Each owner or operator seeking to comply with 40 CFR 60 752(b)(2)(i) shall site active collection wells, horizontal collectors surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the APCO as provided in 60 752(b)(2)(i)(C) and (D) [40 CFR 60 759(a)] Federally Enforceable Through Title V Permit
 - 87 The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues shall be addressed in the design depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use air intrusion control, corrosion resistance, fill settlement and resistance to the refuse decomposition heat [40 CFR 60 759(a)(1)] Federally Enforceable Through Title V Permit
 - 88 The placement of gas collection devices determined in paragraph 60 759(a)(1) shall control all gas producing areas, except as provided by paragraphs 60 759(a)(3)(i) and (a)(3)(ii) [40 CFR 60 759(a)(3)] Federally Enforceable Through Title V Permit

- INSPECTION WORKSHEET
- 89 The sufficient density of gas collection devices determined in paragraph 60 759(a)(1) shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior [40 CFR 60 759(a)(2)] Federally Enforceable Through Title V Permit
 - 90 Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under 60 758(d) The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and shall be provided to the Administrator upon request [40 CFR 60 759(a)(3)(i)] Federally Enforceable Through Title V Permit
 - 91 Any nonproductive area of the landfill may be excluded from control provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill The amount location, and age of the material shall be documented and provided to the Administrator upon request A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill Emissions from each section shall be computed using the equation in Section 60 759(a)(3)(ii) [40 CFR 60 759(a)(3)(ii)] Federally Enforceable Through Title V Permit
 - 92 The values for k and CNMOC in equation in Section 60 759(a)(3)(ii) determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radius of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero) If field testing has not been performed the default values for k Lo and CNMOC provided in 60 754(a)(1) or the alternative values from 60 754(a)(5) shall be used The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature location, age and amount of the nondegradable material is documented as provided in paragraph 60 759(a)(3)(i) [40 CFR 60 759(a)(3)(iii)] Federally Enforceable Through Title V Permit
 - 93 Each owner or operator seeking to comply with 60 752(b)(2)(i)(A) shall construct the gas collection devices using the following equipment or procedures (1) The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to convey projected amounts of gases, withstand installation static and settlement forces, and withstand planned overburden or traffic loads The collection system shall extend as necessary to comply with emission and migration standards Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control Perforations shall be situated with regard to the need to prevent excessive air infiltration (2) Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion including for example centering of pipes and placement of gravel backfill Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations, (3) Collection devices may be connected to the collection header pipes below or above the landfill surface The connector assembly shall include a positive closing throttle valve any necessary seals and couplings access couplings and at least one sampling port The collection devices shall be constructed of PVC, HDPE fiberglass, stainless steel or other nonporous material of suitable thickness [40 CFR 60 759(b)] Federally Enforceable Through Title V Permit
 - 94 Each owner or operator seeking to comply with 60 752(b)(2)(i)(A) shall convey the landfill gas to a control system in compliance with 60 752(b)(2)(iii) through the collection header pipe(s) The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures (1) For existing collection systems, the flow data shall be used to project the maximum flow rate If no flow data exists, the procedures in paragraph 60 759(c)(2) shall be used (2) For new collection systems the maximum flow rate shall be in accordance with 60 755(a)(1) [40 CFR 60 759(c)] Federally Enforceable Through Title V Permit

APPENDIX III

Copy of EPA Consent Decree

1 BENJAMIN B WAGNER
2 United States Attorney
SYLVIA QUAST
3 Assistant United States Attorneys
4 501 I Street, Suite 10 100
Sacramento, CA 95814
5 Telephone (916) 554 2700
Facsimile (916) 554-2900
6 Attorneys for the United States of America
7

8 IN THE UNITED STATES DISTRICT COURT
9 EASTERN DISTRICT OF CALIFORNIA
10

11 UNITED STATES OF AMERICA, et al

Case No 2 11 cv 00590 EFB

12 Plaintiffs,

CONSENT DECREE

13 v

14 FORWARD INC ,

15 Defendant
16

17 TABLE OF CONTENTS

18	I	<u>JURISDICTION AND VENUE</u>	2 -
19	II	<u>APPLICABILITY</u>	2
20	III	<u>DEFINITIONS</u>	3
21	IV	<u>CIVIL PENALTY</u>	4
22	V	<u>COMPLIANCE REQUIREMENTS</u>	5
23	VI	<u>ADDITIONAL INJUNCTIVE RELIEF</u>	8
24	VII	<u>REPORTING REQUIREMENTS</u>	- 9
25	VIII	<u>STIPULATED PENALTIES</u>	11 -
26	IX	<u>FORCE MAJEURE</u>	13
27	X	<u>DISPUTE RESOLUTION</u>	- 15
28	XI	<u>INFORMATION COLLECTION AND RETENTION</u>	- 17 -

1	XII	<u>EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS</u>	19
2	XIII	<u>COSTS</u>	20
3	XIV	<u>NOTICES</u>	20
4	XV	<u>EFFECTIVE DATE</u>	22
5	XVI	<u>RETENTION OF JURISDICTION</u>	22
6	XVII	<u>MODIFICATION</u>	22
7	XVIII	<u>TERMINATION</u>	22
8	XIX	<u>PUBLIC PARTICIPATION</u>	23
9	XX	<u>SIGNATORIES/SERVICE</u>	23
10	XXI	<u>INTEGRATION</u>	24
11	XXII	<u>FINAL JUDGMENT</u>	24
12	XXIII	<u>APPENDICES</u>	24
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

1 Plaintiffs United States of America, on behalf of the United States Environmental
2 Protection Agency ("EPA"), and the San Joaquin Valley Unified Air Pollution Control District
3 ("District") filed a complaint in this action on March 2, 2010, as amended by a Second Amended
4 Complaint filed concurrently with this Consent Decree alleging that Defendant Forward, Inc , violated
5 Sections 111, 112, and 502 of the Clean Air Act (' Act"), 42 U S C §§ 7411 7412, and 7661a , and
6 California Health and Safety Code §§ 39000 *et seq*

7 The Complaint alleges that from 2006 to the present Defendant as owner and operator of
8 the Forward Landfill ("Landfill ") in Manteca California, has operated the Landfill s gas collection and
9 control system ("GCCS ") in violation of the operating permit that Defendant obtained from the District
10 pursuant to the Title V of the Act ("Operating Permit') and in violation of regulations for municipal
11 solid waste landfills promulgated by EPA pursuant to the Act The alleged violations include operating
12 the Landfill s GCCS to allow oxygen concentrations to exceed the 15% limit and the 55 degree Celsius
13 temperature limit for landfill gases in the Operating Permit, failing to operate the Landfill s GCCS in a
14 manner that would prevent overdraw that could cause fires submitting inaccurate certifications of
15 compliance and an incomplete response to EPA s information request under section 114 of the Act, and
16 failing to submit deviation reports to the District and EPA The Complaint also alleges that Defendant
17 violated District Rule 2010 and the California State Implementation Plan by operating a composting
18 facility, a green waste and food receiving operation a screening machine, and a tub grinder at the
19 Landfill without first obtaining appropriate permits from the District

20 Defendant denies the allegations of the Complaint and does not admit any liability to the
21 United States or the District arising out of the transactions or occurrences alleged in the Complaint

22 The Parties recognize, and the Court by entering this Consent Decree finds that this
23 Consent Decree has been negotiated by the Parties in good faith and will avoid litigation between the
24 Parties and that this Consent Decree is fair, reasonable and in the public interest

25 NOW, THEREFORE, before the taking of any testimony, without the adjudication or
26 admission of any issue of fact or law except as provided in Section I, and with the consent of the Parties
27 IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows

1
2
3
4
5
6
7
8
9
10
11
12
13
14

I JURISDICTION AND VENUE

1 1 This Court has jurisdiction over the subject matter of this action, pursuant to
2 28 U S C §§ 1331, 1345, and 1355, and Sections 113 and 304(a) of the Act 42 U S C §§ 7413,
3 7604(a), and over the Parties. The Court has jurisdiction over the District Rule violation claims asserted
4 by the District pursuant to 28 U S C § 1367. Venue lies in this judicial district pursuant to Section
5 113(b) of the Act, 42 U S C § 7413(b). Section 304(c) of the Act 42 U S C § 7604(c), and 28 U S C
6 §§ 1391(b) and 1395(a), and 28 U S C §§ 1391(b) and 1395(a), because the violations alleged in the
7 Complaint are alleged to have occurred in, and Defendant conducts business in, this judicial district
8

9 2 For purposes of this Decree or any action to enforce this Decree Defendant
10 consents to the Court's jurisdiction and to venue in this judicial district. For purposes of this Consent
11 Decree Defendant agrees that the Complaint states claims upon which relief may be granted under
12 Sections 113 and 604 of the Act 42 U S C § 7413 and § 7604, and California Health and Safety Code
13 sections 39000 et seq.

14

II APPLICABILITY

15 3 The obligations of this Consent Decree apply to and are binding upon the United
16 States and the District, and upon Defendant and any successors, assigns or other entities or persons
17 otherwise bound by law.

18 4 No transfer of ownership or operation of the Facility, whether in compliance with
19 the procedures of this Paragraph or otherwise shall relieve Defendant of its obligation to ensure that the
20 terms of the Decree are implemented. At least 30 Days prior to such transfer Defendant shall provide a
21 copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice
22 of the prospective transfer together with a copy of the proposed written agreement to EPA Region 9
23 the United States Attorney for the Eastern District of California and the United States Department of
24 Justice in accordance with Section XIV of this Decree (Notices). Any attempt to transfer ownership or
25 operation of the Facility without complying with this Paragraph constitutes a violation of this Decree.

26 5 Defendant shall provide a copy of this Consent Decree to all officers, employees,
27 and agents whose duties might reasonably include compliance with any provision of this Decree, as well
28 as to any contractor retained to perform work required under this Consent Decree. Defendant shall

f "District" shall mean the San Joaquin Valley Unified Air Pollution Control District,

g EPA" shall mean the United States Environmental Protection Agency and any of its successor departments or agencies,

h 'Effective Date" shall have the definition provided in Section XV

i "Facility" shall mean Defendant's landfill located in Manteca California,

j "GCCS" means the Facility's gas collection and control system described in the Facility's Title V permit,

k 'Paragraph' shall mean a portion of this Decree identified by an arabic numeral

l Parties" shall mean the United States, the District and Defendant

m "Plaintiffs" shall mean the United States and the District

n Section" shall mean a portion of this Decree identified by a roman numeral,

o 'United States" shall mean the United States of America, acting on behalf of EPA

IV CIVIL PENALTY

8 Within 30 Days after the Effective Date of this Consent Decree Defendant shall pay the sum of \$100,000 to the United States Department of Justice as a civil penalty, together with interest accruing from the date on which the Consent Decree is lodged with the Court at the rate specified in 28 U.S.C. § 1961 as of the date of lodging. Defendant shall pay the civil penalty due by FedWire Electronic Funds Transfer ('EFT') to the U.S. Department of Justice in accordance with written instructions to be provided to Defendant, following entry of the Consent Decree, by the Financial Litigation Unit of the U.S. Attorney's Office for the Eastern District of California, 501 I Street, Suite 10-100, Sacramento, CA 95818, (916) 554-2700. At the time of payment, Defendant shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter which shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in *United States et al v Forward Inc*, E.D. Cal. Case No. 2:11-cv-00590-EFB, and shall reference the DOJ file

number 90 5-2 1 09873, to the United States in accordance with Section XIV of this Decree (Notices) by email to acctsreceivable.CINWD@epa.gov, and by mail to

EPA Cincinnati Finance Office
26 Martin Luther King Drive
Cincinnati, Ohio 45268

9 Defendant shall not deduct any penalties paid under this Decree pursuant to this Section or Section VIII (Stipulated Penalties) in calculating its federal, state or local income tax

10 No later than 30 Days after the Effective Date of this Consent Decree Defendant shall pay a civil penalty of \$100 000 to the District by check made payable to the 'San Joaquin Valley Unified Air Pollution Control District' and delivered by U S Mail to its District Counsel's office, located at 1990 E Gettysburg Avenue, Fresno California 93726

V COMPLIANCE REQUIREMENTS

11 Except as provided in Paragraph 13, Defendant shall comply with all permits issued for the Facility pursuant to the Act, District Rules 2010, 2070 2201 and 2520 and with all applicable requirements in the following regulations relating to the operation of the GCCS

a 'New Source Performance Standards for Municipal Solid Waste Landfills,' 40 C F R Part 60, Subpart WWW, 40 C F R §§ 60 750 60 759 ('Landfill NSPS'), and

b 'National Emission Standards for Hazardous Air Pollutants Municipal Solid Waste Landfills' 40 C F R Part 63, Subpart AAAA, 40 C F R §§ 630 1930 630 1990 ("Landfill NESHAP")

12 In addition to the applicable compliance requirements set forth in Paragraph 11, Defendant shall comply with the following specific requirements which shall be completed no later than thirty (30) days from the Effective Date of the Consent Decree except as provided in subparagraphs (a) and (b)

a Defendant shall complete the Defendant's previously planned "Improvements to Facility GCCS" described in Appendix A by October 31, 2012

b By December 31 2012, Defendant shall apply to the District on an expedited basis for, and take all necessary action to obtain, a modification to its Title V operating permit for the Facility that will require it to operate interior wells in the GCCS at oxygen levels at less than the

numerical limit specified in 40 C F R § 60 753(c) (the numerical limit is currently 5 percent) at the time of Defendant's application Defendant's application may seek higher limits for the wells in the Interim Well Program described in Appendix B at the time of Defendant s application, but must justify higher limits for each such well pursuant to 40 C F R § 60 753(c),

c Defendant shall move gas probes 7 through 12 located at the edge of the Landfill at least one hundred (100) feet outside of the waste line and shall maintain a minimum 100 foot buffer between the probes and the waste

d Defendant shall comply with the intermediate cover requirements established in California Code of Regulations Title 27 §§ 20700 20705, and shall implement a program to monitor, on a monthly basis, the integrity of the Landfill s cover, and shall implement Landfill cover repairs as necessary, as provided in 40 C F R § 60 755(c)(5),

e Defendant shall implement a program to monitor, on a monthly basis the integrity of all well boots and seals in the GCCS and shall repair and replace those well boots and seals as necessary to minimize oxygen intrusion into the Landfill, and

f If any well is installed after February 1 2012 as part of the GCCS Defendant shall install a sampling port at each such wellhead to take measurements of oxygen and other parameters, as provided in 40 C F R § 60 756(a)

13 Interim Wellhead Oxygen Limits Between the Effective Date of this Consent Decree and the effective date of the modified permit that Defendant will apply for pursuant to Paragraph 12(b) of this Consent Decree Defendant shall operate each interior wellhead in the GCCS with an oxygen level at less than the numerical limit specified in 40 C F R § 60 753(c) (the numerical limit is currently 5 percent) except as provided for in Appendix B

14 Interim Wellhead Gas Temperature Limits

a Between the Effective Date of this Consent Decree and the effective date of the modified permit that Defendant will apply for pursuant to Paragraph 12(b), Defendant shall operate extraction wells A11 05, A11 06, A11 07, A11 08, A11 09, A11 10, A11 11 FU03 01R, FU04 14R FU04 15R FU04 18R, FU04 27R, FU05 08R, FU05-10R FU06 15, FU06 16, FU08 02, and FU08 03 at a gas temperature of no more than 141° F If after the Effective Date of the Consent

Decree and prior to the effective date of the modified permit, the gas temperature in one of these wells exceeds the gas temperature limit specified in 40 C.F.R. § 60.753(c) (currently 55° C or 131° F) Defendant shall conduct a CO Analysis for that well within five business days of the exceedance Defendant shall report the results in the quarterly reports required pursuant to Paragraph 17. If any CO Analysis reading is 1000 ppmv or above, Defendant shall notify EPA and the District Compliance Office verbally and via email within 24 hours of receipt of such reading. Also, if the gas temperature in one of these wells exceeds 141 degrees Fahrenheit, Defendant shall initiate corrective action within five Days. If correction of the exceedance cannot be achieved within 120 Days of the initial exceedance, Defendant shall

1 Submit a request to FPA and the District for an alternative timeline
for correcting exceedance, or

ii Request an alternative gas temperature limit pursuant to Subparagraph (b) below, or

111 Undertake such other corrective action as mutually agreed to by
the Defendant and FPA

b As described in subparagraphs 14(a)(ii) and 14(c)(ii), Defendant may request an alternative gas temperature limit for the wellheads identified in this Paragraph by submitting its request in writing to EPA and the District. Any such request shall contain all available sampling and other evidence relevant to EPA's and the District's consideration of the requesting, including, but not limited to, the existence of suspected or actual subsurface combustion. At the Defendant's request, EPA and the District will meet with the Defendant to provide it an opportunity to present the reasons for its request. EPA and the District shall be guided in their decision by the following standards. If the results of two consecutive monthly CO Analyses for a given well that are taken immediately prior to Forward's request are below 200 ppmv, then Forward may stop monthly CO monitoring and operate the well with the higher operating temperature, but not to exceed 145 °F. If the monthly CO Analysis is above 200 ppmv and below 500 ppmv, Forward shall continue monthly monitoring but may still utilize the higher operating temperature, but not to exceed 145 °F. If the well is above 145°F or CO is above 500 ppmv, Forward shall close the well as corrective action and undertake such further actions as directed by

1 District and/or EPA to further investigate the potential for a subsurface fire in the area of the well After
2 considering Defendant s request, EPA and the District will either grant the request or deny it, in writing
3 If EPA and the District grant Defendant s request for an alternative wellhead gas temperature limit for
4 an existing wellhead, the alternative approved limit shall immediately supersede the previously
5 applicable limit and become the new interim temperature limit for that wellhead

6 c For any well installed after February 1, 2012, if the gas temperature in one
7 of these wells exceeds 131 degrees Fahrenheit Defendant shall initiate corrective action within five
8 Days If correction of the exceedance cannot be achieved within 120 Days of the initial exceedance,
9 Defendant shall

10 i Submit a request to EPA and the District for an alternative timeline
11 for correcting exceedance or

12 ii Request an alternative gas temperature limit pursuant to
13 Subparagraph (b) above or

14 iii Undertake such other corrective action as mutually agreed to by
15 the Defendant and EPA

16 15 Permits Where any compliance obligation under this Section requires Defendant to
17 obtain a federal, District, or local permit or approval, Defendant shall submit timely and complete
18 applications and take all other actions necessary to obtain all such permits or approvals Defendant may
19 seek relief under the provisions of Section IX of this Consent Decree (Force Majeure) for any delay in
20 the performance of any such obligation resulting from a failure to obtain or a delay in obtaining any
21 permit or approval required to fulfill such obligation, if Defendant has submitted timely and complete
22 applications and has taken all other actions necessary to obtain all such permits or approvals

23 VI ADDITIONAL INJUNCTIVE RELIEF

24 16 By December 31, 2012, Defendant will replace the seven diesel trucks currently
25 in use in the Stockton area and three diesel trucks currently in use in the Fresno area that are all listed
26 under the heading "2012 Replacements Stockton and Fresno" on Appendix C attached hereto, with
27 model year 2010 or newer diesel fuel trucks By December 31, 2013, Defendant will replace the nine
28 diesel trucks currently in use in the Fresno area that are all listed under the heading "2013 Replacements

1 Fresno" on Appendix C attached hereto, with model year 2010 or newer diesel fuel trucks or at
2 Defendant's sole option with CNG or LNG fueled trucks. The parties agree that implementing the truck
3 replacement project described in this Section will reduce air emissions beyond emission reductions
4 required by applicable California regulations, including the Diesel Particulate Matter Control Measures,
5 13 CCR §§ 2020 - 2021, and estimate those extra reductions to be approximately 83.2 tons of nitrogen
6 oxide and 3.4 tons of particulate matter. Any public statement, oral or written, in print, film, or other
7 media made by Defendants making reference to the Additional Injunctive Relief under this Section
8 shall include the following language: "This project was undertaken in connection with the settlement of
9 an enforcement action, *United States, et al v. Forward, Inc.*, taken on behalf of the U.S. Environmental
10 Protection Agency and the San Joaquin Valley Unified Air Pollution Control District under the Clean
11 Air Act." Defendants shall not use or rely on emissions reductions generated as a part of the Additional
12 Injunctive Relief under this Section in any federal, state, or local emissions averaging, banking, trading,
13 netting, credit, or offset program.

14 VII. REPORTING REQUIREMENTS

15 17. After lodging of this Consent Decree and until termination of this Decree pursuant
16 to Section XVIII, Defendant shall submit a quarterly report on March 30, June 30, September 30, and
17 December 31 for the preceding quarter that includes the well monitoring data for the quarter for those
18 parameters included in Defendant's semi-annual Title V reports to the District and EPA, the status of
19 any construction required by Appendix A, the status of all activities required by subsection 12(c)
20 through (f), the information required in paragraph 7 of Appendix B, and the status of any pending permit
21 applications required by this Consent Decree. The report shall also include a description of any non-
22 compliance with the requirements of this Consent Decree and an explanation of the violation's likely
23 cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. The
24 information required in a quarterly report for the second quarter of the period covered by any of
25 Defendant's Semi-Annual Reports may be submitted in the Semi-Annual Report in lieu of a separate
26 quarterly report. If Defendant violates or has reason to believe that it may violate, any requirement of
27 this Consent Decree, Defendant shall notify the United States and the District of such violation and its
28 likely duration, in writing, within ten working Days of the Day that Defendant first becomes aware of

1 the violation, with an explanation of the violation's likely cause and of the remedial steps taken or to be
2 taken to prevent or minimize such violation. If the cause of a violation cannot be fully explained at the
3 time the report is due, Defendant shall so state in the report. Defendant shall investigate the cause of the
4 violation and shall then submit an amendment to the report including a full explanation of the cause of
5 the violation, within 30 Days of the Day Defendant becomes aware of the cause of the violation.
6 Nothing in this Paragraph or the following Paragraph relieves Defendant of its obligation to provide the
7 notice required by Section IX of this Consent Decree (Force Majeure). As used herein, a permit
8 violation will not be deemed to have occurred, and no deviation report need be submitted by Defendant
9 to EPA or the District, if a given interior gas extraction wells exceeds the NSPS operating parameters in
10 40 CFR section 60.753(b)(3) for oxygen, nitrogen, or temperature so long as Forward is in compliance
11 with the corrective action timelines in 40 CFR section 60.755(a)(5).

12 18 Whenever any violation of this Consent Decree or any other event affecting
13 Defendant's performance under this Decree, or the performance of its Facility, may pose an immediate
14 threat to the public health or welfare or the environment, Defendant shall notify EPA and the District
15 orally or by electronic or facsimile transmission as soon as possible but no later than 24 hours after
16 Defendant first knew of the violation or event. This procedure is in addition to the requirements set
17 forth in the preceding Paragraph.

18 19 All reports shall be submitted to the persons designated in Section XIV of this
19 Consent Decree (Notices).

20 20 Each report submitted by Defendant under this Section shall be signed by an
21 official of the submitting party and include the following certification:

22 I certify under penalty of law that this document and all attachments were
23 prepared under my direction or supervision in accordance with a system
24 designed to assure that qualified personnel properly gather and evaluate
25 the information submitted. Based on my inquiry of the person or persons
26 who manage the system or those persons directly responsible for
27 gathering the information, the information submitted is, to the best of my
28 knowledge and belief, true, accurate, and complete. I am aware that there
29 are significant penalties for submitting false information, including the
30 possibility of fine and imprisonment for knowing violations.

31 This certification requirement does not apply to emergency or similar notifications where compliance
32 would be impractical.

21 The reporting requirements of this Consent Decree do not relieve Defendant of
any reporting obligations required by the Act or implementing regulations or by any other federal state,
or local law, regulation permit, or other requirement

22 Any information provided pursuant to this Consent Decree may be used by the
United States or the District in any proceeding to enforce the provisions of this Consent Decree or any
violation of federal or state law and as otherwise permitted by law

VIII STIPULATED PENALTIES

23 Defendant shall be liable for stipulated penalties to the United States and the
District for violations of this Consent Decree as specified below, unless excused under Section IX
(Force Majeure)

24 Late Payment of Civil Penalty If Defendant fails to pay the civil penalty required
to be paid under Section IV of this Decree (Civil Penalty) when due Defendant shall pay a stipulated
penalty of \$1000 per Day for each Day that the payment is late

25 Interim Limits The following stipulated penalties shall accrue per violation per
Day for each violation of a requirement of Paragraphs 13 or 14

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 1000	1st through 14th Day
\$ 2000	15th through 30th Day
\$ 2500	31st Day and beyond

A well will not be considered to be in violation of Paragraphs 13 or 14 for purposes of this Paragraph
during the time period that Defendant is taking corrective action in accordance with 40 C F R §
60 755(a)(5)

26 Injunctive Relief The following stipulated penalties shall accrue per violation per
Day for each violation of the requirements identified in Paragraphs 12 and 16

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 1000	1st through 14th Day
\$ 2000	15th through 30th Day
\$ 2500	31st Day and beyond

1 27 Reporting Requirements The following stipulated penalties shall accrue per
2 violation per Day for each violation of the reporting requirements of Section VII and Appendix B,
3 paragraph 7, of this Consent Decree

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 1000	1st through 14th Day
\$ 2000	15th through 30th Day
\$ 4000	31st Day and beyond

4
5
6
7
8 28 If Defendant fails to perform as required by this Consent Decree or violates this
9 Consent Decree, stipulated penalties under this Section shall begin to accrue on the Day after the
10 performance was due or on the Day a violation occurred, whichever is applicable, and shall continue to
11 accrue until performance is completed or until the violation ceases. However, if a stipulated penalty
12 would otherwise accrue because a report required by Section VII or Appendix B paragraph 7, is deemed
13 by the United States or the District to contain a material deficiency, stipulated penalties shall not begin
14 to accrue until the United States or the District has notified Defendant of any such deficiency.
15 Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree

16 29 Defendant shall pay stipulated penalties to the United States and the District
17 within 30 Days of a written demand by either Plaintiff. Defendant shall pay 50 percent of the total
18 stipulated penalty amount due to the United States and 50 percent to the District. The Plaintiff making a
19 demand for payment of a stipulated penalty shall simultaneously send a copy of the demand to the other
20 Plaintiff.

21 30 Either Plaintiff may in the unreviewable exercise of its discretion, reduce or waive
22 stipulated penalties otherwise due it under this Consent Decree.

23 31 Stipulated penalties shall continue to accrue as provided in Paragraph 29 during
24 any Dispute Resolution, but need not be paid until the following

25 a If the dispute is resolved by agreement or by a decision of EPA or the
26 District that is not appealed to the Court, Defendant shall pay accrued penalties determined to be owing,
27 together with interest, to the United States or the District within 30 Days of the effective date of the
28 agreement or the receipt of EPA's or the District's decision or order.

1 b If the dispute is appealed to the Court and the United States or the District
2 prevails in whole or in part, Defendant shall pay all accrued penalties determined by the Court to be
3 owing, together with interest, within 60 Days of receiving the Court's decision or order except as
4 provided in subparagraph c, below

5 c If any Party appeals the District Court's decision, Defendant shall pay all
6 accrued penalties determined to be owing, together with interest within 15 Days of receiving the final
7 appellate court decision

8 32 Defendant shall pay stipulated penalties owing to the United States in the manner
9 set forth and with the confirmation notices required by Paragraph 8, except that the transmittal letter
10 shall state that the payment is for stipulated penalties and shall identify the violations for which the
11 penalties are being paid Defendant shall pay stipulated penalties owing to the District by check made
12 payable to the ' San Joaquin Valley Unified Air Pollution Control District and delivered by U S Mail to
13 its District Counsel's office, located at 1990 E Gettysburg Avenue, Fresno, California 93726

14 33 If Defendant fails to pay stipulated penalties according to the terms of this
15 Consent Decree Defendant shall be liable for interest on such penalties, as provided for in 28 U S C
16 § 1961, accruing as of the date payment became due Nothing in this Paragraph shall be construed to
17 limit the United States or the District from seeking any remedy otherwise provided by law for
18 Defendant's failure to pay any stipulated penalties

19 34 Subject to the provisions of Section XII of this Consent Decree (Effect of
20 Settlement/Reservation of Rights), the stipulated penalties provided for in this Consent Decree shall be
21 in addition to any other rights remedies, or sanctions available to the United States for Defendant's
22 violation of this Consent Decree or applicable law Where a violation of this Consent Decree is also a
23 violation of a Clean Air Act requirement, Defendant shall be allowed a credit for any stipulated
24 penalties paid against any statutory penalties imposed for such violation

25 IX FORCE MAJEURE

26 35 "Force majeure," for purposes of this Consent Decree is defined as any event
27 arising from causes beyond the control of Defendant or any entity controlled by Defendant or of
28 Defendant's contractors that delays or prevents the performance of any obligation under this Consent

1 Decree despite Defendant's best efforts to fulfill the obligation. The requirement that Defendant
2 exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force
3 majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) after
4 it has occurred to prevent or minimize any resulting delay to the greatest extent possible. "Force
5 Majeure" does not include Defendant's financial inability to perform any obligation under this Consent
6 Decree.

7 36 If any event occurs or has occurred that may delay the performance of any
8 obligation under this Consent Decree, whether or not caused by a force majeure event, Defendant shall
9 provide notice orally or by electronic or facsimile transmission to the Plaintiffs within 72 hours of when
10 Defendant first knew that the event might cause a delay. Within seven business days thereafter,
11 Defendant shall provide in writing to EPA and the District an explanation and description of the reasons
12 for the delay, the anticipated duration of the delay, all actions taken or to be taken to prevent or
13 minimize the delay, a schedule for implementation of any measures to be taken to prevent or mitigate
14 the delay or the effect of the delay, Defendant's rationale for attributing such delay to a force majeure
15 event if it intends to assert such a claim, and a statement as to whether, in the opinion of Defendant, such
16 event may cause or contribute to an endangerment to public health, welfare or the environment.
17 Defendant shall include with any notice all available documentation supporting the claim that the delay
18 was attributable to a force majeure. Failure to comply with the above requirements shall preclude
19 Defendant from asserting any claim of force majeure for that event for the period of time of such failure
20 to comply, and for any additional delay caused by such failure. Defendant shall be deemed to know of
21 any circumstance of which Defendant, any entity controlled by Defendant, or Defendant's contractors
22 knew or should have known.

23 37 If EPA, after a reasonable opportunity for review and comment by the District,
24 agrees that the delay or anticipated delay is attributable to a force majeure event, the time for
25 performance of the obligations under this Consent Decree that are affected by the force majeure event
26 will be extended by EPA, after a reasonable opportunity for review and comment by the District, for
27 such time as is necessary to complete those obligations. An extension of the time for performance of the
28 obligations affected by the force majeure event shall not, of itself, extend the time for performance of

1 any other obligation EPA will notify Defendant in writing of the length of the extension, if any, for
2 performance of the obligations affected by the force majeure event

3 38 If EPA, after a reasonable opportunity for review and comment by the District
4 does not agree that the delay or anticipated delay has been or will be caused by a force majeure event,
5 EPA will notify Defendant in writing of its decision

6 39 If Defendant elects to invoke the dispute resolution procedures set forth in Section
7 X (Dispute Resolution) it shall do so no later than 30 days after receipt of EPA's notice In any such
8 proceeding, Defendant shall have the burden of demonstrating by a preponderance of the evidence that
9 the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of
10 the delay or the extension sought was or will be warranted under the circumstances, that best efforts
11 were exercised to avoid and mitigate the effects of the delay, and that Defendant complied with the
12 requirements of Paragraphs 36 and 37, above If Defendant carries this burden the delay at issue shall
13 be deemed not to be a violation by Defendant of the affected obligation of this Consent Decree
14 identified to EPA and the Court

15 X DISPUTE RESOLUTION

16 40 Unless otherwise expressly provided for in this Consent Decree, the dispute
17 resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under
18 or with respect to this Consent Decree Defendant's failure to seek resolution of a dispute under this
19 Section shall preclude Defendant from raising any such issue as a defense to an action by the United
20 States to enforce any obligation of Defendant arising under this Decree

21 41 Informal Dispute Resolution Any dispute subject to Dispute Resolution under
22 this Consent Decree shall first be the subject of informal negotiations The dispute shall be considered
23 to have arisen when one Party sends the other Party a written Notice of Dispute Such Notice of Dispute
24 shall state clearly the matter in dispute The period of informal negotiations shall not exceed 20 Days
25 from the date the dispute arises, unless expressly agreed to by all Parties and confirmed by electronic or
26 written communication verifying such agreement If the Parties cannot resolve a dispute by informal
27 negotiations, then the position advanced by the United States shall be considered binding unless, within
28

1 30 Days after the conclusion of the informal negotiation period Defendant invokes formal dispute
2 resolution procedures as set forth below

3 42 Formal Dispute Resolution Defendant shall invoke formal dispute resolution
4 procedures, within the time period provided in the preceding Paragraph, by serving on the United States
5 and the District a written Statement of Position regarding the matter in dispute The Statement of
6 Position shall include, but need not be limited to any factual data, analysis or opinion supporting
7 Defendant's position and any supporting documentation relied upon by Defendant

8 43 The United States and the District shall serve their Statements of Position, if any
9 within 45 Days of receipt of Defendant's Statement of Position The Plaintiffs' Statements of Position
10 shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position
11 and any supporting documentation relied upon by the Plaintiffs The Plaintiffs' Statements of Position
12 shall be binding on Defendant unless Defendant files a motion for judicial review of the dispute in
13 accordance with the following Paragraph

14 44 Defendant may seek judicial review of the dispute by filing with the Court and
15 serving on the United States, in accordance with Section XIV of this Consent Decree (Notices), a motion
16 requesting judicial resolution of the dispute The motion must be filed within 30 Days of receipt of the
17 Plaintiffs' Statements of Position pursuant to the preceding Paragraph The motion shall contain a
18 written Statement of Defendant's position on the matter in dispute, including any supporting factual
19 data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within
20 which the dispute must be resolved for orderly implementation of the Consent Decree

21 45 The United States and the District shall respond to Defendant's motion within the
22 time period allowed by the Local Rules of this Court Defendant may file a reply memorandum, to the
23 extent permitted by the Local Rules

24 46 Standard of Review

25 a Disputes Concerning Matters Accorded Record Review Except as
26 otherwise provided in this Consent Decree, in any dispute brought under Paragraph 43 (Formal Dispute
27 Resolution) pertaining to any request by Defendant to EPA and the District pursuant to Paragraph 14
28 (Interim Wellhead Gas Temperature Limits) for an alternative gas temperature limit or for an alternative

1 timeline for correcting an exceedance, Defendant shall have the burden of demonstrating, based on the
2 administrative record that the position of the United States is arbitrary and capricious or otherwise not
3 in accordance with law

4 b Other Disputes Except as otherwise provided in this Consent Decree,
5 Defendant shall bear the burden of demonstrating by a preponderance of the evidence that its position
6 complies with this Consent Decree and furthers the objectives of the Consent Decree

7 47 The invocation of dispute resolution procedures under this Section shall not by
8 itself, extend, postpone, or affect in any way any obligation of Defendant under this Consent Decree,
9 unless and until final resolution of the dispute so provides Stipulated penalties with respect to the
10 disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be
11 stayed pending resolution of the dispute as provided in Paragraph 32 If Defendant does not prevail on
12 the disputed issue stipulated penalties shall be assessed and paid as provided in Section VIII (Stipulated
13 Penalties)

14 XI INFORMATION COLLECTION AND RETENTION

15 48 The United States, the District, and their representatives, including attorneys
16 contractors, and consultants, shall have the right of entry into any facility covered by this Consent
17 Decree, at all reasonable times, upon presentation of credentials to

18 a monitor the progress of activities required under this Consent Decree,

19 b verify any data or information submitted to the United States or the
20 District in accordance with the terms of this Consent Decree

21 c obtain samples and, upon request splits of any samples taken by
22 Defendant or its representatives, contractors or consultants

23 d obtain documentary evidence including photographs and similar data and

24 e assess Defendant's compliance with this Consent Decree

25 49 Upon request Defendant shall provide EPA and the District or their authorized
26 representatives, splits of any samples taken by Defendant Upon request, EPA and the District shall
27 provide Defendant splits of any samples taken by EPA or the District
28

1 50 Until three years after the termination of this Consent Decree, Defendant shall
2 retain, and shall instruct its contractors and agents to preserve, all non identical copies of all documents,
3 records, or other information (including documents, records, or other information in electronic form) in
4 its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents'
5 possession or control, and that relate in any manner to Defendant's performance of its obligations under
6 this Consent Decree. This information-retention requirement shall apply regardless of any contrary
7 corporate or institutional policies or procedures. At any time during this information retention period
8 upon request by the United States or the District, Defendant shall provide copies of any documents
9 records, or other information required to be maintained under this Paragraph.

10 51 At any time during the applicable retention period in this Section and upon
11 request by the United States or the District, Defendant shall deliver to the requestor a copy of any
12 documents, record, or other information required to be maintained under this Section. Defendant may
13 assert that certain documents, records, or other information is privileged under the attorney-client
14 privilege or any other privilege recognized by federal law. If Defendant asserts such a privilege, it shall
15 provide the following: (1) the title of the document, record, or information, (2) the date of the
16 document, record, or information, (3) the name and title of each author of the document, record, or
17 information, (4) the name and title of each addressee and recipient, (5) a description of the subject of the
18 document, record, or information, and (6) the privilege asserted by Defendant. However, no documents,
19 records, or other information created or generated pursuant to the requirements of this Consent Decree
20 shall be withheld on grounds of privilege.

21 52 Defendant may also assert that information required to be provided under this
22 Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any
23 information that Defendant seeks to protect as CBI, Defendant shall follow the procedures set forth in 40
24 C.F.R. Part 2.

25 53 This Consent Decree in no way limits or affects any right of entry and inspection
26 or any right to obtain information held by the United States or the District pursuant to applicable federal
27 or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of Defendant to
28

1 maintain documents, records, or other information imposed by applicable federal or state laws,
2 regulations, or permits

3 XII EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

4 54 This Consent Decree resolves the civil claims of the United States and the District
5 for the violations alleged in the Complaint filed through the date of lodging of this Decree

6 55 The United States and the District reserve all legal and equitable remedies
7 available to enforce the provisions of this Consent Decree except as expressly stated in Paragraph 55
8 This Consent Decree shall not be construed to limit the rights of the United States or the District to
9 obtain penalties or injunctive relief under the Act or implementing regulations or under other federal
10 state or District laws regulations, or permit conditions except as expressly specified in Paragraph 55
11 The United States and the District further reserve all legal and equitable remedies to address any
12 imminent and substantial endangerment to the public health or welfare or the environment arising at, or
13 posed by, Defendant's Facility, whether related to the violations addressed in this Consent Decree or
14 otherwise

15 56 In any subsequent administrative or judicial proceeding initiated by the United
16 States or the District for injunctive relief civil penalties, other appropriate relief relating to the Facility,
17 Defendant shall not assert, and may not maintain, any defense or claim based upon the principles of
18 waiver res judicata, collateral estoppel, issue preclusion, claim preclusion claim splitting, or other
19 defenses based upon any contention that the claims raised by the United States or the District in the
20 subsequent proceeding were or should have been brought in the instant case, except with respect to
21 claims that have been specifically resolved pursuant to Paragraph 54 of this Section

22 57 This Consent Decree is not a permit or a modification of any permit under any
23 federal, District, or local laws or regulations Defendant is responsible for achieving and maintaining
24 complete compliance with all applicable federal District, and local laws regulations and permits and
25 Defendant's compliance with this Consent Decree shall be no defense to any action commenced
26 pursuant to any such laws, regulations, or permits, except as set forth herein The United States and the
27 District do not by their consent to the entry of this Consent Decree warrant or aver in any manner that
28

1 Defendant's compliance with any aspect of this Consent Decree will result in compliance with
2 provisions of the Act or with any other provisions of federal, state, or local laws, regulations or permits

3 58 This Consent Decree does not limit or affect the rights of Defendant or of the
4 United States or the District against any third parties, not party to this Consent Decree, nor does it limit
5 the rights of third parties, not party to this Consent Decree, against Defendant, except as otherwise
6 provided by law

7 59 This Consent Decree shall not be construed to create rights in or grant any cause
8 of action to, any third party not party to this Consent Decree

9 XIII COSTS

10 60 The Parties shall bear their own costs of this action, including attorneys' fees,
11 except that the United States and the District if they are determined to be the prevailing party by the
12 Court shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to
13 collect any portion of the civil penalty or any stipulated penalties due but not paid by Defendant

14 XIV NOTICES

15 61 Unless otherwise specified herein, whenever notifications, submissions, or
16 communications are required by this Consent Decree, they shall be made in writing and addressed as
17 follows

18 To the United States

19 Chief, Environmental Enforcement Section
20 Environment and Natural Resources Division
21 U S Department of Justice
22 Box 7611 Ben Franklin Station
Washington, D C 20044 7611
Re DOJ No 90 5 2 1 09873

23 and

24 Sylvia Quast
25 United States Attorney's Office
26 Eastern District of California
Suite 10 100
501 I Street
Sacramento, CA 95814

1 To EPA

2 Brian P Riedel
3 U S Environmental Protection Agency
4 Office of the Regional Counsel
5 Region 9
6 75 Hawthorne Street
7 Mail Code ORC 2
8 San Francisco, CA 94105

6 To the District

7 Catherine Redmond, District Counsel
8 San Joaquin Valley Unified Air Pollution Control District
9 1990 E Gettysburg Avenue
10 Fresno, CA 92726

9 and

10 Morgan Lambert, Compliance Director
11 San Joaquin Valley Unified Air Pollution Control District
12 1990 E Gettysburg Avenue
13 Fresno, CA 92726

13 To Defendant(s)

14 Kevin Basso
15 General Manager
16 Forward, Inc
17 1145 W Charter Way
18 Stockton, CA 95206

17 and

18 Tim Benter
19 Vice President & Deputy General Counsel
20 Republic Services, Inc
21 18500 North Allied Way
22 Phoenix AZ 85054

21 and

22 Thomas Bruen
23 Law Offices of Thomas M Bruen, P C
24 1990 N California Blvd, Ste 620
25 Walnut Creek, CA 94596

25 62 Any Party may, by written notice to the other Parties, change its designated notice
26 recipient or notice address provided above
27
28

1 63 Notices submitted pursuant to this Section shall be deemed submitted upon
2 mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in
3 writing

4 XV EFFECTIVE DATE

5 64 The Effective Date of this Consent Decree shall be the date upon which this
6 Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted whichever
7 occurs first, as recorded on the Court's docket

8 XVI RETENTION OF JURISDICTION

9 65 The Court shall retain jurisdiction over this case until termination of this Consent
10 Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this
11 Decree pursuant to Sections X and XVII or effectuating or enforcing compliance with the terms of this
12 Decree

13 XVII MODIFICATION

14 66 The terms of this Consent Decree including any attached appendices, may be
15 modified only by a subsequent written agreement signed by all the Parties Where the modification
16 constitutes a material change to this Decree it shall be effective only upon approval by the Court

17 XVIII TERMINATION

18 67 All obligations set forth in Section V including all reporting requirements
19 pertaining to Section V obligations, shall terminate when the District permit that Defendant is applying
20 for under paragraph 12(b) becomes effective provided that

21 a Defendant has certified to the EPA and the District that it has fulfilled all
22 obligations of Section V of this Decree and all reporting requirements pertaining to those obligations,
23 has paid the civil penalty under Section IV of this Decree and any outstanding stipulated penalties under
24 Section VIII, and

25 b EPA, after consultation with the District, has accepted Defendant's
26 certification and agrees that termination of the Section V obligations, including the relevant reporting
27 obligations, is appropriate under the terms of the Consent Decree
28

1 68 This Consent Decree, including all remaining obligations under this Consent
2 Decree, shall terminate on July 1, 2014, provided that Defendant has certified to the EPA and the
3 District that it has fulfilled all obligations of this Decree and that EPA after consultation with the
4 District, has accepted Defendant's certification and agrees that termination of the remaining obligations
5 is appropriate under the terms of the Consent Decree. The Parties shall file with the Court an
6 appropriate stipulation reciting that the requirements of the Consent Decree have been met and notifying
7 the Court of the termination of the Decree.

8 69 If EPA or the District does not agree that the obligations of the Consent Decree
9 have been fulfilled by Defendant, Defendant may invoke Section X (Dispute Resolution) of this Decree.
10 However, Defendant shall not seek Dispute Resolution under Paragraph 41 (Formal Dispute Resolution)
11 of any dispute regarding termination until after it submits to EPA and the District certification that it has
12 fulfilled the obligations in question.

13 XIX PUBLIC PARTICIPATION

14 70 This Consent Decree shall be lodged with the Court for a period of not less than
15 30 Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves
16 the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose
17 facts or considerations indicating that the Consent Decree is inappropriate, improper, inadequate, or that
18 it is inconsistent with the requirements of the Act. This Consent Decree is also subject to the public
19 participation requirement in section 113(g) of the Act, 42 U.S.C. § 7413(g). Defendant consents to entry
20 of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this
21 Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has
22 notified Defendant in writing that it no longer supports entry of the Decree.

23 XX SIGNATORIES/SERVICE

24 71 Each undersigned representative of Defendant, the District and the Assistant
25 Attorney General for the Environment and Natural Resources Division of the Department of Justice
26 certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree
27 and to execute and legally bind the Party he or she represents to this document.
28

1 72 This Consent Decree may be signed in counterparts, and its validity shall not be
2 challenged on that basis Defendant agrees to accept service of process by mail with respect to all
3 matters arising under or relating to this Consent Decree and to waive the formal service requirements set
4 forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this
5 Court including, but not limited to, service of a summons

6 XXI INTEGRATION

7 73 This Consent Decree constitutes the final, complete, and exclusive agreement and
8 understanding among the Parties with respect to the settlement embodied in the Decree and supercedes
9 all prior agreements and understandings, whether oral or written, concerning the settlement embodied
10 herein No other document nor any representation, inducement, agreement, understanding or promise
11 constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the
12 terms of this Decree

13 XXII FINAL JUDGMENT

14 74 Upon approval and entry of this Consent Decree by the Court, this Consent
15 Decree shall constitute a final judgment of the Court as to the United States the District, and Defendant

16 XXIII APPENDICES

17 75 The following appendices are attached to and part of this Consent Decree
18 "Appendix A" is the "Improvements to Facility GCCS" "Appendix B" is the
19 "Intermittent Well Program," and "Appendix C" is the "Schedule for Landfill Fleet Truck
20 Replacement "

21 Dated and entered this ___ day of _____, 2012

22
23 _____
24 Edmund F Brennan
25 UNITED STATES MAGISTRATE JUDGE
26 Eastern District of California
27
28

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

FOR PLAINTIFF UNITED STATES OF AMERICA

DATED March ___, 2012

IGNACIA S MORENO
Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice

DATED March ___, 2012

BENJAMIN B WAGNER
United States Attorney

SYLVIA QUAST
Assistant U S Attorney
U S Attorney s Office
Eastern District of California

1 FOR PLAINTIFF UNITED STATES OF AMERICA

2
3 DATED March __ 2012

4 JARED BLUMENFELD
5 Regional Administrator
6 U S Environmental Protection Agency
7 Region 9

8 OF COUNSEL
9 BRIAN P RIEDEL
Assistant Regional Counsel
U S Environmental Protection Agency
Region 9

10 DATED March __, 2012

11 CYNTHIA GILES
12 Assistant Administrator
13 Office of Enforcement and Compliance Assurance
14 U S Environmental Protection Agency

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

FOR PLAINTIFF SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

DATED March __, 2012

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

CATHERINE T REDMOND
District Counsel
Attorneys for the San Joaquin Valley
Unified Air Pollution Control District

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

FOR DEFENDANT FORWARD, INC

DATED March ____ 2012

TIM BENTER
Vice President and Assistant Secretary
Forward, Inc

DATED March ____, 2012

LAW OFFICES OF THOMAS M BRUEN
A Professional Corporation

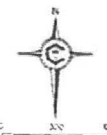
THOMAS M BRUEN
Attorneys for Forward, Inc

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

APPENDIX A

IMPROVEMENTS TO FACILITY GCCS

- 1) Defendant shall abandon the following gas extraction wells in the GCCS AO01, AO02 AO03, AO04, AO05, AO06, AO08, AO09, AO10 AO11, AO12, AO13, AO14, AO15, AO16 AO17 AO18, AO19 AO20, AO21 AO22, AO23, AO24, AO25, AO28, AO32, AO37 AO40, AO41 AO42, AO46 AO48, AO49, AO54 AO56, AO59, AO61, AO62 AO65 AO64, AO67, AO68, AO70, AO71, FOFU6 HCl, FU03 01 FU03 03 FU03 05, FU03-08, FU03 14 FU04 01, FU04 02, FU04 03, FU04-09, FU04 10 FU04 14, FU04 15, FU04-18, FU04 19, FU04 22 FU04 27, FU05 04, FU05 08 FU05 10 FU05 15, FU05 16 FU06 04, FU06-05, FU06 10, FU06-14 FO03, FO05 FO06, FO07 FO09, FO10, FO11, FO13 FO14, FO15 FO16, FO17, FO18 FO20, FO23, FO25, FO26, FO27, FO28 FO29 FO31, FO32, FO33, FO34, FO35, FO36, FO37, FO38, FO44 FO48, FO49, FO50, FO54, FO55, FO56, FO59, FO60, FO61 FO63, FO65, FO69 FO70, FO71, FO72 FO85 FO88 FO94, FO98, FO100, FO101, FOHC 1A FOHC-2A, FOHC 3A, FOHC 3B, FOHC 4B, FOHC 5A, Covanta East Manifold Wells 02 -05, 06, -07 11 12, and Covanta West Manifold Wells 01 and -02
- 2) Defendant shall install gas extraction wells PW 1 through PW 53 in compliance with the drawing entitled "2012 GCCS Improvements Construction Site Plan" attached hereto, except that the number of wells to be installed may be modified by up to 10% of the total, and the specified placement of the wells may be altered by up to 75 feet The placement of specific wells may be altered by more than 75 feet where required due to the presence of soil stockpiles site traffic patterns or the location of the work face as long as the total number of wells has not decreased Defendant shall notify the United States and the District 21 days in advance if it decides to modify the number or alter the placement of the wells to be installed, and explain why the proposed change is required



CORNERSTONE
INTERNATIONAL GROUP, INC.

FORWARD LANDFILL
SAN JOAQUIN COUNTY, CALIFORNIA
2012 GCCS IMPROVEMENTS
CONSTRUCTION SITE PLAN

2

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

APPENDIX B

INTERMITTENT WELL PROGRAM

1) The Intermittent Well Program ("IWP") shall consist of the following extraction wells

A) AO26 AO30, AO43 AO47 AO51 AO53, AO55, AO57, AO60 AO65R, AO68,
AO66 AO69, FU03 HORZ 1 FU03 HORZ 2 FU03 10 FU03 12 FU03 13 FU04
16, FU04 17 FU04 23, FU04 28, FU05 11, FU06 HC1, FU06 HC2 FU06 01,
FU06 02, FU06 08 FU034 WEL FO02, FO04, FO08 FO19 FO21, FO43 FO47,
FO52, FO57, FO63, FO64, FO67, FO89 FO90, FO91 FO99, FOHC 2B, and FOHC-
4A

B) Those extraction wells added to the IWP pursuant to paragraphs 6 and 7 of this
Appendix

2) Defendant shall keep wells in the IWP closed unless the 500 parts per million by volume
("ppmv") methane concentration limits established in 40 C I R 60 753(d) and 60 755(c) or the 25 ppmv
methane concentration limit for integrated surface monitoring are exceeded within 50 meters of the well
in which case Defendant may open and operate the well until methane concentrations return to below
500 ppmv or 25 ppmv, as applicable Defendant may also open a well in the IWP if Defendant receives
approval in writing in advance from the Compliance Director of the District or his designee A well that
has been opened and is being operated pursuant to this paragraph is not subject to the 5% oxygen limit
set forth in Paragraph 14 of the Consent Decree

3) Defendant may open and operate a well in the IWP provided that oxygen concentrations in the
well are below 5% for two consecutive monthly monitoring events If the well subsequently exceeds the
5% limit, Defendant shall take the actions specified in paragraph 6 of this Appendix Within ten days of
opening a well pursuant to paragraph (2) Defendant will notify EPA and the Compliance Director of the
District that it has opened the well the basis for doing so, and the current oxygen levels in the well

4) If a well in the IWP has been closed for twelve continuous months after the Effective Date,
Defendant shall permanently close and seal it subject to the District and EPA's approval, unless
Defendant can demonstrate that the well is still producing methane

1 5) Defendant may propose that an additional extraction well be added to the IWP, provided the well
2 meets the following conditions

3 A) Within 5 days of the well exceeding the 5% oxygen limit Defendant has
4 visually inspected the wellhead for air intrusion (including sampling ports
5 leaky pneumatic pumps, wellhead boot seals, caps and hoses) and, if air
6 intrusion is detected, repaired or replaced the well component allowing air
7 intrusion

8 B) Defendant has reviewed the wellfield and surface monitoring data to
9 ensure adequate well coverage and to rule out a subsurface oxidation
10 event If there is evidence of a subsurface oxidation event, Defendant has
11 immediately conducted maintenance on and augmented cover in the area
12 of the subsurface oxidation event

13 C) After complying with subparagraphs (a) and (b) above, Defendant has
14 reduced vacuum in the well for one hour, but oxygen levels continued to
15 exceed the 5% oxygen limit, at which time Defendant has closed the well
16 and is operating it under positive pressure

17 D) Defendant notifies the District and EPA that it has closed the well,
18 including a description of the actions it has taken pursuant to
19 subparagraphs (a), (b) and (c) above

20 6) Upon receiving notice from the Defendant pursuant to Paragraph 6 of this Appendix that it
21 proposes to add a well to the IWP the well shall become part of the IWP unless the District or EPA
22 notify Defendant within thirty days of receiving the notice that they object to including it in the IWP
23 including the reason for such objection Any disputes about the inclusion of a well in the IWP shall be
24 resolved pursuant to Section X (Dispute Resolution) of the Consent Decree and while any such dispute
25 is pending, the well shall remain closed and no stipulated penalties shall accrue until the dispute is
26 resolved

27 As part of its semi-annual monitoring report required by the NSPS and as required in Section
28 VIII, paragraph 16 of the Consent Decree, Defendant shall provide the EPA and the District with reports

1 on the status of each of the wells in the IWP, including monthly oxygen and methane monitoring results
2 and when the well was opened and closed during the quarter, and identify any wells that it is proposing
3 for inclusion in the IWP and any wells that it is proposing for abandonment Defendant shall also
4 provide such a report to EPA and the District whenever Defendant seeks to add a well to the IWP
5 pursuant to Paragraphs 6 and 7 of this Appendix, the report shall be current as of the date of the
6 proposal

APPENDIX C – SCHEDULE FOR LANDFILL FLEET TRUCK REPLACEMENT

2012 Replacements Stockton & Fresno

Stockton

<u>Unit #</u>	<u>VIN</u>	<u>Description</u>	<u>Horse Power</u>	<u>Annual Hours</u>	<u>Mileage</u>
1324	4V2DC2HE8YN246665	2000 VOLVO FL TRUCK	275	1513	34,799
1331	5VCDC6MF87H204201	2007 AUTOCAR FL TRUCK	330	2303	52,969
1332	5VCDC6MFX7H204202	2007 AUTOCAR FL TRUCK	330	2577	59 271
2445	5VCDC6MF36H202760	2006 AUTOCAR SL TRUCK	330	2154	49 542
2451	5VCHC6MF67H204408	2007 AUTOCAR SL TRUCK	330	2120	48 760
2452	5VCHC6MF87H204409	2007 AUTOCAR SL TRUCK	330	2432	55 936
2455	5VCHC6JF89H209424	2009 AUTOCAR SL TRUCK	345	2174	50 002

Fresno

<u>Unit #</u>	<u>VIN</u>	<u>Description</u>	<u>Horse Power</u>	<u>Annual Hours</u>	<u>Mileage</u>
1253	4V2DC6UE22N337032	2002 VOLVO FL TRUCK	320	635	14605
1254	4V2DC6UE42N337033	2002 VOLVO FL TRUCK	320	1034	23782
2255	5VCHC6UE83N194404	2003 AUTOCAR FL TR	280	399	9177

2013 Replacements Fresno

<u>Unit #</u>	<u>VIN</u>	<u>Description</u>	<u>Horse Power</u>	<u>Annual Hours</u>	<u>Mileage</u>
2470	5VDC6UE03N194377	2003 AUTOCAR SL TRUCK	320	1679	38617
2471	5VDC6UE23N194378	2003 AUTOCAR SL TRUCK	320	1967	45241
2472	5VDC6UE43N194379	2003 AUTOCAR SL TRUCK	320	1837	42251
2473	5VDC6UE23N194381	2003 AUTOCAR SL TRUCK	320	2227	51221
2474	5VDC6UE03N194380	2003 AUTOCAR SL TRUCK	320	1425	32775
2475	5VDC6UE83N194384	2003 AUTOCAR SL TRUCK	320	805	18515
2476	5VDC6UEX3N194385	2003 AUTOCAR SL TRUCK	320	2124	48852
2477	5VDC6UE13N194386	2003 AUTOCAR SL TRUCK	320	799	18377
2468	4V2DC6HE52N337035	2002 VOLVO SL TRUCK	275	1550	35650

APPENDIX IV

Landfill Greenhouse Gas Emission Calculations

Greenhouse Gas Emission Calculations

N-339-1-2 Wood Waste Receiving

No GHG emissions are expected from this operation

N-339-9-2 GASOLINE DISPENSING OPERATION WITH ONE 500 GALLON ABOVE GROUND GASOLINE STORAGE TANK SERVED BY TWO-POINT PHASE I VAPOR RECOVERY SYSTEM (G-70-102-A), AND 1 FUELING POINT WITH 1 PHASE II EXEMPT GASOLINE DISPENSING NOZZLE

Annual fuel dispensing is limited by the permit to 24,000 gallons per year. An emission factor of 0.0143 lb-CO₂e/1000 gallons is assumed, per the District's GHG calculations for non-gear gasoline dispensing facilities guidance. Thus

GHG = 24,000 gal/year x 0.0143 lb-CO₂e/1000 gal x ton/2000 lb
GHG = 0.2 tons CO₂e/year

N-339-15-2 Sludge Drying Operation

No GHG emissions are expected from this operation

N-339-16-2 Bioremediation Operation

No GHG emissions are expected from this operation

N-339-17-8 13.8 MILLION CUBIC YARD CAPACITY (218 ACRES) LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM CONTROLLED BY A 2000 SCFM (EQUIVALENT TO 48.0 MMBTU/HR) ENCLOSED FLARE AND CARBON ADSORPTION SYSTEM (CAS), AND A 3400 SCFM (EQUIVALENT TO 102 MMBTU/HR) PERENNIAL ENERGY MODEL GHS-301 LFG-FIRED ENCLOSED FLARE WITH LPG PILOT

Only biogenic GHG emissions are expected from this operation. Biogenic emissions are not currently included when making PSD and Title V determinations, per an EPA deferral ruling.

APPENDIX V

Quarterly Net Emission Change Calculations

QNEC Calculations

$$\text{QNEC} = (\text{PE2} - \text{BE}) - 4$$

As shown in Section VII C 5, BE is equal to PE1 for all pollutants Therefore, the equation for QNEC reduces to

$$\text{QNEC} = (\text{PE2} - \text{PE1}) - 4$$

This project will not result in a change in the potential to emit for any pollutant Therefore, QNEC is equal to zero for all pollutants

APPENDIX VI

Applicant's Request to Increase Wellhead Temperature Limits

SCS ENGINEERS

November 21 2013
Project No 01205164 00 Task 24

Rupi Gill
Permit Services Manager
4800 Enterprise Way
Modesto, CA 95356
San Joaquin Valley Air Pollution Control District
District Northern Regional Office

Received
NOV 27 2013
COMPLIANCE
SJVAPCD

**SUBJECT ADDITIONAL INFORMATION - ALTERNATIVE WELL
TEMPERATURES FORWARD LANDFILL, MANTECA, CALIFORNIA
(FACILITY # N-339)**

Dear Rupi

We wish to thank you and the other District staff for meeting with the representatives of Forward Inc (Forward) and SCS Engineers (SCS) to discuss the draft Authority to Construct (ATC) and alternative well operating temperature scenarios. The meeting was productive and helped provide a guide for the additional information necessary for the San Joaquin Valley Air Pollution Control District (SJVAPCD or District) and United States Environmental Protection Agency (EPA) to re-evaluate Forward's request for an alternative operating temperature for appropriate wells. Pursuant to the meeting discussion, SCS has on behalf Forward, prepared this letter providing additional information supporting the proposed alternative temperatures.

CONSENT DECREE PROVISIONS

The SJVAPCD incorporated in its draft ATC the alternative temperature operating limits in Paragraph 14 of the Consent Decree (Decree) for interior wellheads All-05, All-06 All-07 All-08 All-09 All-10 All-11 FU03-01R FU04-14R FU04-15R FU04-18R FU04-27R FU05-08R, FU05-10R FU06-15 FU06-16 FU-08-02 and FU08-03. The alternative temperature limits allow Forward to operate each of these interior wellheads with a landfill gas (LFG) temperature less than 141 degrees Fahrenheit (°F) and with either a nitrogen level less than 20 percent or an oxygen level less than five (5) percent. However, the Decree also includes specific carbon monoxide (CO) monitoring requirements for those wells operating with the approved alternative temperature. Monitoring CO concentrations in these wells will provide data confirming that the alternative operating temperature allowed by the Decree neither increases subsurface oxidation nor inhibits anaerobic decomposition.

Forward requests that the CO monitoring requirements defined in the Decree are included in Condition 73 as they relate to the wellhead limits specified above. These requirements are as follows:

“Paragraph 14a of the Decree requires that a CO analysis (monitoring) be performed within five (5) business days of when the gas temperature in one of the wells identified in Paragraph 14a exceeds the gas temperature limit specified in the NSPS (55 degrees Celsius (°C) or 131 °F), and that the results be reported in the semi-annual reports required pursuant to Condition 54 of draft ATC N-339-117-13

Per Paragraph 14a, if any CO analysis reading is 1000 parts per million by volume (ppmv) or above, Forward will notify the District verbally and via email within 24 hours of receipt of such a reading ”

ALTERANTIVE WELL OPERATING TEMPERATURE

On October 4 2012 Forward submitted an application for an ATC to the SJVAPCD requesting an alternative operating temperature for wells A12-14 05-15R 04-19R, F12-08 F12-09 and F12 10 which were not on the original list The SJVAPCD denied Forward’s request on March 13 2013 stating that the data provided by Forward indicated the corrective actions were successful in correcting the temperature exceedances within the 120 days of the initial exceedance

SCS Field Services (SCSFS) provided additional well monitoring data at the October 30th meeting with the District Monitoring results for wells A11-04 A12-02 A12 03 A12 04 A12-05, A12 13S A12-14 A12-16 AO-65RS, 05-15R, 04-19R F12-01 F-12 02 F12-03 F-12 06 F12 08 F12-09 F12-10 F12-11 Top Deck Well 01 Top Deck Well 04 and Top Deck Well 05 indicate operating temperatures for these wells have consistently been 125 °F or above during the past 18 months These wells were either installed or began operation after February 1, 2012 Monitoring data for these wells suggest the following

- Elevated temperatures were observed in the deepest portions of the landfill as shown on Figure 1 (Attachment A) This is a common occurrence at landfills where the deep gas exhibits the highest temperatures
- Installation of additional wells, as required by the New Source Performance Standards (NSPS) standards and the Decree have not significantly helped to correct the elevated temperatures monitored in these wells rather the installations continue to show that this area of the landfill (red location points - Figure 1) consistently operates at a higher temperature Elevated operating temperatures can be attributed to the type of refuse in that area, decomposition rates, and depth of the refuse in the areas with red location points (up to 120 feet of waste material)
- CO concentrations detected in wells for these areas indicate normal anaerobic decomposition with no oxidation occurring no readings in excess of 200 parts per million (ppm) (the limit set by the Decree) have been detected (Attachment A) Methane concentrations for these wells generally range from 40 to 65 percent (%)
- In September 2012 a sample from well F12-08 was analyzed for CO by a licensed laboratory to verify the CO concentration in the well The laboratory results indicate that the sample did not contain detectable concentrations of CO (Attachment B)

Limiting the temperature to the NSPS requirement of less than 131 °F requires that Forward reduces, significantly in some cases the extraction rates on these wells which inhibits optimal operation of the well field and will result in less LFG being collected. Consequences of operating the wells at a lower temperature include

- Wells operating at a reduced vacuum result in reduced LFG extraction rates, which results in a decrease in the removal of residual heat that is generated during the decomposition process. This could cause other wells to exhibit elevated temperatures in the future.
- Limiting well extraction reduces the radius of influence for each well and has led to surface emissions exceedances in the vicinity of these wells. Forward has been able to reduce the surface emissions by temporarily increasing the extraction rates for the wells in the affected zones. However, the well operating temperatures increase due to increased extraction rates requiring a reduction in the extraction rate to lower the temperature, resulting in a cyclic process of increasing/decreasing flow to correct well temperature or surface emissions exceedances thus inhibiting optimal wellfield operation and therefore LFG recovery.

Current well monitoring data indicate compliance with the NSPS standards. However, actions available to maintain compliance have been limited to (1) minimizing well extraction rates and (2) expanding the collection system. Since the landfill has already undergone significant expansion and the temperatures for wells in select areas of the landfill continue to fluctuate around the NSPS temperature limit, it is Forward's and SCS' opinion that elevated temperatures recorded in these areas are due to the type of fill and its depth and warrant an alternative operating temperature. Forward proposes revision of the draft ATC to incorporate the following conditions using verbiage similar to that in the Decree

“ LFG Extraction Well Nos A11-04, A12-02, A12-03, A12-04, A12-05, A12-13S, A12-14, A12-16, AO-65RS, 05-15R, 04-19R, F12-01, F-12-02, F12-03, F-12-06, F12-08, F12-09, F12-10, F12-11, Top Deck Well 01, Top Deck Well 04 and Top Deck Well 05 and Consent Decree Interim Well Nos A11-05, A11-06, A11-07, A11-08, A11-09, A11-10, A11-11, FU03-01R, FU04-14R, FU04-15R, FU04-18R, FU04-27R, FU05-08R, FU05-10R, FU06-15, FU06-16, FU08-02, and FU08-03 may be operated at a temperature of up to 141 °F provided the following monitoring is performed

- (1) Perform monthly CO field monitoring using Draeger™ tubes, or a District-approved monitoring device, for all wells that show a temperature of 131 °F. If the field CO readings are less than 200, the well may continue to operate up to 141 °F.**
- (2) If field readings indicate a CO level between 200 and 500 ppmv, the well will be monitored on a weekly basis to verify that there is no subsurface oxidation occurring. Once the CO levels decrease to below 200 ppmv monthly monitoring will be resumed.**

- (3) If CO field monitoring results indicate a reading in excess of 500 parts per million by volume (ppmv) the well will be temporarily closed and documented and a sample shall be obtained within one week of the exceedance and analyzed for CO using EPA Method D-1946 If results confirm the readings are in excess of 500 ppmv, the well will remain closed and off line and the district will be notified within 24 hours of the exceedance**
- (4) Upon notification of the district, Forward shall undertake such actions as directed by District and/or EPA to further investigate the potential for subsurface oxidation in the area of the well, and develop a plan for remediation ”**

FUTURE WELLS – ALTERNATIVE OPERATING TEMPERATURE

Forward proposes to incorporate a protocol into its Title V permit to allow for the operation of additional wells with an alternative operating temperature without having to schedule a meeting with the SJVAPCD for each proposal Scheduling a meeting with the District each time Forward proposes to operate a well with an alternative temperature (141°F) and waiting for the District to evaluate each well that follows the same pattern would result in unnecessary significant delays and could drastically affect the operational efficiency of Forward's the collection system We believe it would be beneficial for both District and site staff if a process were in place for allowing additional wells to operate at the alternative temperature when conditions warrant it Forward suggests that a protocol, such as has been provided in the Decree could be included in the permit thereby allowing Forward to safely and efficiently operate the well(s) If wells consistently exhibit elevated temperatures, and where the installation of another well(s) would not be the appropriate corrective action, as required in the NSPS Forward would follow the proposed monitoring protocol in the permit and operate the well with an alternative temperature (141°F) The proposed protocol which is taken from the Decree is as follows

“CO analysis (monitoring) will performed within five (5) business days of when the gas temperature in one of the well exceeds the gas temperature limit specified in the NSPS (55 degrees Celsius (°C) or 131 °F) The CO monitoring results shall be reported in the semi-annual reports required pursuant to Condition 54 of draft ATC N-339-117-13

If any CO analysis reading is 1000 parts per million by volume (ppmv) or above, Forward will notify the District verbally and via email within 24 hours of receipt of such a reading

If the gas temperature in a well exceeds 141°F, permittee shall initiate corrective action within five days If correction of the exceedance cannot be achieved within 120 Days of the initial exceedance, permittee shall

- 1 Submit a request to EPA and the District for an alternative timeline for correcting exceedance, or**

- ii Request an alternative gas temperature limit by submitting a request in writing to the District. The request will contain all available sampling data and other evidence relevant to the District's consideration of the permittee's request, or**
- iii Undertake such other corrective action as mutually agreed to by the Permittee and District "**

Landtec GEM™ 5000 DOCUMENTATION

SCSFS proposed using an alternative means of monitoring CO concentration in extraction wells Paragraph 7a of the Decree requires that the CO concentration in extraction wells is monitored using Draeger™ tubes in accordance with manufacturer s instructions SCSFS conducts CO monitoring in accordance with Paragraph 7a of the Decree and the manufacturer's instructions

Landtec has recently introduced a CO monitoring component in its GEM 5000 Specifications for the GEM™ 5000 (GEM) are provided in Attachment C SCSFS has been using this monitoring device since March 2013 at several landfills and has taken CO readings from components using both the GEM and the Draeger™ tube to determine the disparity between CO concentrations measured using the GEM and the Draeger™ tubes To date data indicates that the GEM and Draeger™ readings are within 5 to 10 ppm of each other SCSFS believes this slight discrepancy is due to the method with which the CO concentration is obtained from the Draeger™ tubes The CO readings are obtained by viewing a color change on a glass tube which can be very subjective as compared to the GEM 5000, which provides a digital reading It is SCSFSs opinion that the CO concentrations obtained from the GEM 5000 are as accurate as those obtained from the Draeger™ tubes SCSFS proposes to perform the following procedure for several designated locations at Forward Landfill to compare CO field testing readings

SCSFS proposes to collect a sample from several designated locations using the GEM and Draeger™ tube and then collect a gas sample at the same location for laboratory analysis using EPA Method D 1946 The data from each of the field monitoring devices and the lab sample would then be evaluated to determine how closely each CO monitoring device compares to the laboratory result If the GEM reading for each location is similar to the Draeger™ tube and correlates with the laboratory result SCSFS and Forward request that the use of the GEM for CO monitoring is approved by the SJVAPCD Forward would then request that a condition for this allowance is incorporated into the modified Title V permit

PROPOSED PERMIT LANGUAGE FOR CO MONITORING PROTOCOL

If the District adds the GEM to its list of District-approved monitoring devices for CO field monitoring Forward proposes adding a permit condition that would allow the use of either the GEM or Draeger™ Tubes to monitor field CO concentrations SCS proposes general language such as the example provided below

"CO monitoring for extraction wells with temperatures of 131°F or above shall be conducted using DraegerTM tubes or a District-approved monitoring device, such as the Landtec GEM 5000TM,"

CLOSING

Forward appreciates the District's willingness to further evaluate an alternative operating temperature for the extraction wells. The data provided herein supports Forward's proposal for an alternative well operating temperature. The alternative temperature limit will allow Forward to maximize the collection efficiency which will be especially important as the installation of the new LFG to-energy (LFGTE) facility is almost complete. The CO monitoring protocol, which is not required by NSPS, will allow for early detection of potential subsurface oxidation. Forward requests that approval of field monitoring the CO concentration using the GEM be considered separately from the alternative well temperature request if it would delay the SJVAPCD's approval of an alternative well operating temperature. It has always been Forward's intent to operate the landfill in a manner which protects the public and the environment.

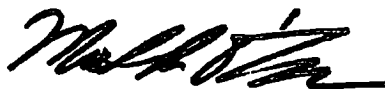
In closing, we wish to summarize our understanding of the process of the final transition from the Decree to the new permit conditions once these remaining items are resolved and the final permit is issued. According to the Decree, the requirements in the modified Title V permit will supersede the requirements in the Decree provided that the EPA and District have certified that Forward has fulfilled the obligations of Section V of the Decree and the reporting requirements pertaining to those obligations. Please note that once the Decree expires (July 14 2014), and EPA and the District agree that the termination obligations of the Decree are appropriate, documentation must be filed by each party certifying that the requirements of the Decree have been met and that the Decree has been terminated.

If you have any questions or require any additional information, please contact the undersigned at (707) 546-9461.

Sincerely,



Leslie M. Bove
Project Professional
SCS ENGINEERS



Michael O. Connor
Senior Project Professional
SCS ENGINEERS

Attachments: A – Figure 1
B – Well Data and Lab Data
C – GEMTM 5000 Specifications

Mr Gill
November 21 2013
Page 7 of 8

cc List

To the United States

Chief Environmental Enforcement Section
Environment and Natural Resources Division
U S Department of Justice
Box 7611 Ben Franklin Station
Washington D C 20044-7611
Re DOJ No 90-5-2-1-09873

Sylvia Quast
United States Attorney s Office
Eastern District of California
Suite 10-100
501 I Street
Sacramento CA 95814

To EPA

Brian P Riedel
U S Environmental Protection Agency
Office of the Regional Counsel
Region 9
75 Hawthorne Street
Mail Code ORC-2
San Francisco CA 94105

To the District

Catherine Redmond District Counsel
San Joaquin Valley Unified Air Pollution Control District
1990 E Gettysburg Avenue
Fresno, CA 92726

Morgan Lambert, Compliance Director
San Joaquin Valley Unified Air Pollution Control District
1990 E Gettysburg Avenue
Fresno CA 92726

Kevin Basso
General Manager
Forward Inc
1145 W Charter Way
Stockton CA 95206

Tim Benter
Vice President & Deputy General Counsel
Republic Services, Inc
18500 North Allied Way
Phoenix AZ 85054

Mr Gill
November 21 2013
Page 8 of 8

Thomas Bruen
Law Offices of Thomas M Bruen, P C
1990 N California Blvd Ste 620
Walnut Creek CA 94596

Additional recipients

U S EPA Administrator, Air Division, Region IX
Air – 3
75 Hawthorne Street
San Francisco, CA 94105

Erin Fanning, Forward
Forward Landfill
9999 S Austin Road
Manteca, CA 95336

James Harader
4800 Enterprise Way
Modesto CA 95356
San Joaquin Valley Air Pollution Control District
District Northern Regional Office

Nick Peirce
4800 Enterprise Way
Modesto CA 95356
San Joaquin Valley Air Pollution Control District
District Northern Regional Office

Patrick Sullivan (SCS) Electronic Copy

Arthur Jones (SCS) Electronic Copy

Sean Bass (SCS) Electronic Copy

Attachment A

Figure 1

Attachment B

Well Data and Laboratory Data

**Forward Well Data for Selected Wells
July 2012 through September 2013**

Name	Date Time	(% by vol)	Dioxide	(% by vol)	(% by vol)	(ppm)	Static	Static	Temp	Temp	Flow	(scfm)	Comments
A11-04	6/15/2012 13:52	57.5	40.2	0	2.3		-2.2	-2.2	127	127	13	13	No Change; Well bore seal okay
A11-04	8/13/2012 13:45	55.5	43.4	0.4	0.7		-1.5	-1.6	126	126	22	21	No Change; Well bore seal okay
A11-04	9/10/2012 16:47	56.3	42.5	0	1.2		-1.6	-2.1	129	129	20	21	Opened valve 1/2 turn or less;
A11-04	5/3/2013 13:35	57.7	42.3	0	0		-0.63	-0.63	125	125	22	23	No Change; Well bore seal okay
A11-04	6/28/2013 11:29	58.4	41.6	0	0		-1.35	-1.33	125	125	35	35	No Change; Well bore seal okay
A11-04	8/29/2013 16:19	58.4	41.6	0	0		-1.12	-1.12	125	125	4	4	No Change; Well bore seal okay
A11-05 (Interim Temp)	6/15/2012 13:47	52.9	40.4	0	6.7	180	-0.9	-0.9	134	134	14	13	No Change; Well bore seal okay
A11-05 (Interim Temp)	6/28/2012 17:08	50.7	41.5	0	7.8	110	-1	-1.1	134	133	17	17	No Change; Well bore seal okay
A11-05 (Interim Temp)	7/5/2012 12:12	54.4	41.3	0	4.3	90	-1.3	-1.3	134	134			No Change; Well bore seal okay
A11-05 (Interim Temp)	9/7/2012 12:08	56.8	42.7	0.3	0.2	100	-3.8	-3.9	134	135	39	40	Back online (offline for filling
A11-05 (Interim Temp)	9/24/2012 11:39	54.2	45.6	0.1	0.1	90	-5.7	-5.8	134	134	41	44	Opened valve 1/2 turn or less;
A11-05 (Interim Temp)	10/5/2012 12:55	54.7	45.1	0	0.2	120	-5.9	-5.8	132	132	39	39	No Change; Well bore seal okay
A11-05 (Interim Temp)	10/30/2012 11:17	51.3	48.4	0.1	0.2	140	-6.1	-6	132	131	32	32	No Change; Well bore seal okay
A11-05 (Interim Temp)	11/13/2012 14:28	51.1	48.7	0	0.2		-4.6	-4.6	129	129	38	37	No Change; Well bore seal okay
A11-05 (Interim Temp)	11/28/2012 16:00	49.7	50.2	0	0.1		-6.5	-6.5	128	128	38	39	No Change; Well bore seal okay
A11-05 (Interim Temp)	12/13/2012 15:16	51.7	48.2	0	0.1	140	-5.6	-5.6	132	132	37	35	No Change; Well bore seal okay
A11-05 (Interim Temp)	12/31/2012 15:51	53.3	46.6	0	0.1		-6.4	-6.4	127	129	39	40	No Change; Well bore seal okay
A11-05 (Interim Temp)	1/10/2013 11:35	53.8	45.6	0	0.6	120	-6.7	-6.8	131	131	38	40	Opened valve 1/2 turn or less;
A11-05 (Interim Temp)	1/30/2013 13:44	53.8	46.1	0	0.1	150	-5.6	-5.7	133	134	35	34	No Change; Well bore seal okay
A11-05 (Interim Temp)	2/14/2013 15:51	51.6	46.7	0	1.7	140	-3.7	-3.7	133	133	30	30	No Change; Well bore seal okay
A11-05 (Interim Temp)	2/21/2013 13:51	52.5	47.4	0	0.1	140	-3.8	-3.8	131	132	27	27	No Change; Well bore seal okay
A11-05 (Interim Temp)	3/6/2013 11:41	53.1	45.8	0.1	1		-4.5	-4.4	129	130	21	22	No Change; Well bore seal okay
A11-05 (Interim Temp)	3/21/2013 10:28	53.8	45.7	0.3	0.2		-3.5	-3.5	127	128	27	28	No Change; Well bore seal okay
A11-05 (Interim Temp)	4/15/2013 11:13	54.9	44.5	0	0.6	160	-3.56	-3.56	132	132	23	23	No Change; Well bore seal okay
A11-05 (Interim Temp)	5/3/2013 13:38	55.9	44.1	0	0	170	-1.55	-1.55	135	135	20	21	No Change; Well bore seal okay
A11-05 (Interim Temp)	5/28/2013 15:45	56	44	0	0	140	-1.31	-1.31	134	134	30	30	No Change; Well bore seal okay
A11-05 (Interim Temp)	6/14/2013 8:43	55.9	44.1	0	0	160	-2.45	-2.42	132	133	19	19	No Change; Well bore seal okay
A11-05 (Interim Temp)	6/28/2013 11:31	57.3	42.7	0	0	140	-2.01	-2	136	136	31	31	No Change; Well bore seal okay
A11-05 (Interim Temp)	7/5/2013 8:58	55.8	44	0	0.2	130	-2.8	-2.79	133	133	21	21	No Change; Well bore seal okay
A11-05 (Interim Temp)	7/26/2013 7:38	56.4	43.6	0	0		-2.88	-2.88	129	129	19	19	No Change; Well bore seal okay
A11-05 (Interim Temp)	8/12/2013 13:35	56.4	43.6	0	0	180	-1.88	-1.88	135	135	35	35	No Change; Well bore seal okay
A11-05 (Interim Temp)	8/29/2013 16:22	56.8	43.2	0	0	180	-1.87	-1.86	135	135	14	14	No Change; Well bore seal okay
A11-05 (Interim Temp)	9/11/2013 12:33	56.3	43.7	0	0	140	-2.57	-2.58	134	134	14	14	No Change; Well bore seal okay
A11-05 (Interim Temp)	9/18/2013 15:00	55.5	43.5	0	1	160	-1.45	-1.46	135	135	26	26	No Change; Well bore seal okay
A11-06(Interim Temp)	6/15/2012 14:10	54.9	40.9	0	4.2	80	-2.9	-2.9	131	131	31	32	No Change; Well bore seal okay
A11-06(Interim Temp)	6/28/2012 17:12	52.8	42.4	0	4.8	80	-3.1	-3.1	131	131	32	33	No Change; Well bore seal okay
A11-06(Interim Temp)	7/6/2012 11:30	57.5	40.7	0	1.8	60	-3.5	-3.5	131	131	31	30	No Change; Well bore seal okay
A11-06(Interim Temp)	7/20/2012 11:23	51.8	43.3	0.1	4.8	70	-3.4	-3.5	131	131	30	29	No Change; Well bore seal okay
A11-06(Interim Temp)	8/13/2012 13:48	54.4	43.4	0.1	2.1	90	-2.7	-2.8	132	133	15	14	No Change; Well bore seal okay
A11-06(Interim Temp)	8/28/2012 10:44	55.5	42.5	0	2	70	-3.4	-3.5	132	133	27	26	No Change; Well bore seal okay
A11-06(Interim Temp)	9/11/2012 11:00	57.7	42.2	0	0.1	70	-4	-4	137	137	30	29	No Change; Well bore seal okay
A11-06(Interim Temp)	9/24/2012 11:44	55.3	44.5	0.1	0.1	100	-3.6	-3.8	131	131	30	30	Opened valve 1/2 turn or less;
A11-06(Interim Temp)	10/5/2012 13:00	57	42.9	0	0.1		-3.8	-3.8	130	130	32	33	No Change; Well bore seal okay
A11-06(Interim Temp)	10/30/2012 11:22	55.2	44.4	0.2	0.2		-4.2	-4.2	129	129	30	30	No Change; Well bore seal okay
A11-06(Interim Temp)	11/13/2012 14:32	55.5	44.3	0	0.2		-2.5	-2.6	128	129	33	34	No Change; Well bore seal okay
A11-06(Interim Temp)	11/28/2012 16:03	55.3	44.6	0	0.1		-4.6	-4.5	129	129	30	30	No Change; Well bore seal okay
A11-06(Interim Temp)	12/13/2012 15:07	56.1	43.5	0	0.4	100	-3.6	-3.6	131	130	31	30	No Change; Well bore seal okay
A11-06(Interim Temp)	12/31/2012 15:54	54.9	42.7	0	2.4		-4.8	-4.7	129	129	35	35	No Change; Well bore seal okay
A11-06(Interim Temp)	1/10/2013 11:23	54.2	41.8	0	4		-4.9	-5.1	130	130	33	34	Opened valve 1/2 turn or less;

Forward Well Data for Selected Wells
July 2012 through September 2013

Name	Date Time	(% by vol)	Dioxide	(% by vol)	(% by vol)	(ppm)	Static	Static	Temp	Temp	Flow	(scfm)	Comments
A11-06(Interim Temp)	1/30/2013 13:48	55.1	41.5	0	3.4	80	-4.8	-4.7	132	132	35	34	No Change; Well bore seal okay
A11-06(Interim Temp)	2/14/2013 15:58	52.2	42.4	0	5.4	90	-3	-3	132	132	27	28	No Change; Well bore seal okay
A11-06(Interim Temp)	2/25/2013 9:58	56.4	41.5	0	2.1	80	-1.2	-1.2	132	132	25	26	No Change; Well bore seal okay
A11-06(Interim Temp)	3/6/2013 11:45	53.5	42.5	0	4		-4	-4	129	129	23	23	No Change; Well bore seal okay
A11-06(Interim Temp)	3/21/2013 10:46	55.9	43	0.5	0.6		-2.8	-2.7	127	129	24	26	No Change; Well bore seal okay
A11-06(Interim Temp)	4/15/2013 11:09	55.9	42.9	0	1.2	70	-2.99	-2.99	133	133	24	23	No Change; Well bore seal okay
A11-06(Interim Temp)	5/3/2013 13:42	57.6	42.4	0	0	140	-0.4	-0.4	134	134	21	21	No Change; Well bore seal okay
A11-06(Interim Temp)	5/28/2013 15:52	56.6	43.4	0	0	100	-0.64	-0.65	134	134	24	24	No Change; Well bore seal okay
A11-06(Interim Temp)	6/14/2013 8:40	56.5	43.5	0	0	170	-1.83	-1.82	133	133	16	16	No Change; Well bore seal okay
A11-06(Interim Temp)	6/28/2013 11:33	57.2	42.8	0	0	150	-1.34	-1.34	135	135	21	20	No Change; Well bore seal okay
A11-06(Interim Temp)	7/5/2013 9:03	55.9	44.1	0	0	90	-2.11	-2.09	133	133	20	20	No Change; Well bore seal okay
A11-06(Interim Temp)	7/26/2013 7:34	56.6	43.4	0	0		-2.23	-2.21	128	127	21	21	No Change; Well bore seal okay
A11-06(Interim Temp)	8/12/2013 13:51	57.8	42.1	0	0.1	130	-1.18	-1.18	135	135	15	15	No Change; Well bore seal okay
A11-06(Interim Temp)	8/29/2013 16:27	57.3	42.7	0	0	160	-1.39	-1.39	135	135	13	14	No Change; Well bore seal okay
A11-06(Interim Temp)	9/11/2013 12:38	56.8	43.2	0	0	130	-2.21	-2.22	134	134			No Change; Well bore seal okay
A11-06(Interim Temp)	9/18/2013 15:13	56.7	42.9	0	0.4	110	-0.96	-0.97	135	135	33	33	No Change; Well bore seal okay
A11-07(Interim Temp)	6/15/2012 14:15	51.8	40.9	0	7.3	150	-3.4	-3.4	139	138	27	27	No Change; Well bore seal okay
A11-07(Interim Temp)	6/28/2012 17:16	50.2	41.7	0	8.1	100	-3.7	-3.7	138	138	28	28	No Change; Well bore seal okay
A11-07(Interim Temp)	7/6/2012 11:34	52.7	40.9	0	6.4	80	-4.1	-4	138	138	28	28	No Change; Well bore seal okay
A11-07(Interim Temp)	7/20/2012 11:28	48.1	42	0	9.9	110	-3.9	-4	137	137	29	28	No Change; Well bore seal okay
A11-07(Interim Temp)	8/13/2012 13:54	51.1	43	0.3	5.6	190	-3.4	-3.3	136	138	5	7	No Change; Well bore seal okay
A11-07(Interim Temp)	8/28/2012 10:55	52.1	42.2	0.1	5.6	110	-4.3	-4.3	139	139			No Change; Well bore seal okay
A11-07(Interim Temp)	9/11/2012 11:05	53.4	41.8	0	4.8	140	-4.5	-4.5	139	138	26	25	No Change; Well bore seal okay
A11-07(Interim Temp)	9/24/2012 11:49	51.7	43.6	0.1	4.6	120	-4.1	-4.1	137	137	27	28	No Change; Well bore seal okay
A11-07(Interim Temp)	10/5/2012 13:03	54.9	42.5	0	2.6	110	-3.9	-3.9	136	136	28	28	No Change; Well bore seal okay
A11-07(Interim Temp)	10/30/2012 11:25	52.2	43.9	0.2	3.7	110	-4.3	-4.3	135	135	23	24	No Change; Well bore seal okay
A11-07(Interim Temp)	11/13/2012 14:40	52.3	43.5	0	4.2	110	-2.7	-2.7	136	136	25	26	No Change; Well bore seal okay
A11-07(Interim Temp)	11/28/2012 16:06	51.9	44.7	0	3.4	100	-4.7	-4.7	136	136	25	26	No Change; Well bore seal okay
A11-07(Interim Temp)	12/13/2012 15:01	52.6	43.2	0	4.2	110	-3.7	-3.8	136	136	26	26	No Change; Well bore seal okay
A11-07(Interim Temp)	12/31/2012 15:57	51.3	42.1	0	6.6		-4.4	-4.3	136	137	25	24	No Change; Well bore seal okay
A11-07(Interim Temp)	1/10/2013 11:16	51.3	40.7	0	8	110	-4.5	-4.5	135	136	23	22	No Change; Well bore seal okay
A11-07(Interim Temp)	1/30/2013 13:52	51.4	41.1	0	7.5	130	-4.1	-4	138	139	25	25	No Change; Well bore seal okay
A11-07(Interim Temp)	2/14/2013 16:04	50.1	42.3	0	7.6	100	-2.5	-2.4	138	138	15	21	No Change; Well bore seal okay
A11-07(Interim Temp)	2/25/2013 10:02	53.6	41.4	0	5	130	-0.6	-0.6	137	137			No Change; Well bore seal okay
A11-07(Interim Temp)	3/6/2013 11:48	51.3	41.6	0	7.1	100	-3.7	-3.7	135	136	15	14	No Change; Well bore seal okay
A11-07(Interim Temp)	3/21/2013 10:40	54	42.4	0.3	3.3	42	-2.6	-2.6	134	134	9	10	No Change; Well bore seal okay
A11-07(Interim Temp)	4/15/2013 11:20	54.1	42.9	0	3	110	-2.79	-2.8	138	138	18	17	No Change; Well bore seal okay
A11-07(Interim Temp)	5/3/2013 13:47	57.7	42.2	0	0.1	180	-0.21	-0.21	138	138	28	28	No Change; Well bore seal okay
A11-07(Interim Temp)	5/28/2013 15:57	56.9	43.1	0	0	120	-0.61	-0.63	139	139	17	17	No Change; Well bore seal okay
A11-07(Interim Temp)	6/14/2013 9:18	56.4	43.1	0	0.5	180	-1.62	-1.62	138	138	25	24	No Change; Well bore seal okay
A11-07(Interim Temp)	6/28/2013 11:36	57.5	42.5	0	0	160	-1.24	-1.26	137	137	15	14	No Change; Well bore seal okay
A11-07(Interim Temp)	7/5/2013 9:08	55.2	44.8	0	0	110	-2.01	-2.03	137	138	17	16	No Change; Well bore seal okay
A11-07(Interim Temp)	7/26/2013 7:49	56.9	43.1	0	0	100	-2.28	-2.29	137	137	15	15	No Change; Well bore seal okay
A11-07(Interim Temp)	8/12/2013 14:25	56.7	41.7	0.1	1.5	170	-1.1	-1.1	137	137	37	18	No Change; Well bore seal okay
A11-07(Interim Temp)	8/29/2013 16:31	57.9	42.1	0	0	180	-1.32	-1.32	138	138	27	27	No Change; Well bore seal okay
A11-07(Interim Temp)	9/13/2013 12:56	57	43	0	0	180	-1.08	-1.08	139	139	28	29	No Change; Well bore seal okay
A11-07(Interim Temp)	9/24/2013 16:02	56.8	43.2	0	0	130	-0.64	-0.65	139	139	10	10	No Change; Well bore seal okay
A11-08(Interim Temp)	6/15/2012 14:19	51	41.5	0	7.5	170	-1.8	-1.8	133	134	20	20	No Change; Well bore seal okay
A11-08(Interim Temp)	6/28/2012 17:20	50.2	41.6	0	8.2	110	-2.1	-2.1	133	133	37	33	No Change; Well bore seal okay

**Forward Well Data for Selected Wells
July 2012 through September 2013**

Name	Date Time	(% by vol)	Dioxide	(% by vol)	(% by vol)	(ppm)	Static	Static	Temp	Temp	Flow	(scfm)	Comments
A11-08(Interim Temp)	7/6/2012 11:40	51	40.7	0	8.3	120	-2.2	-2.2	133	133	23	23	No Change; Well bore seal okay
A11-08(Interim Temp)	7/20/2012 11:33	46.2	41.6	0	12.2	130	-1.9	-1.9	132	133	33	34	No Change; Well bore seal okay
A11-08(Interim Temp)	8/13/2012 13:58	49.4	41.9	0	8.7	190	-1.7	-1.8	135	135			No Change; Well bore seal okay
A11-08(Interim Temp)	8/28/2012 13:26	50.8	43.7	0.6	4.9	100	-1.7	-1.9	134	134	26	26	No Change; Well bore seal okay
A11-08(Interim Temp)	9/11/2012 11:09	50.5	41.8	0	7.7	150	-2.8	-2.8	139	139	15	14	No Change; Well bore seal okay
A11-08(Interim Temp)	9/24/2012 11:53	50.5	42.6	0.1	6.8	130	-2.3	-2.4	132	132	20	20	No Change; Well bore seal okay
A11-08(Interim Temp)	10/5/2012 13:06	54.4	42	0	3.6	120	-2	-2	132	132	22	22	No Change; Well bore seal okay
A11-08(Interim Temp)	10/30/2012 11:28	53	42.6	0.2	4.2	150	-2.5	-2.5	131	131	15	14	No Change; Well bore seal okay
A11-08(Interim Temp)	11/13/2012 14:45	52.5	44	0	3.5	130	-1	-0.9	131	132	29	29	No Change; Well bore seal okay
A11-08(Interim Temp)	11/28/2012 16:11	53.5	44.3	0	2.2		-2.9	-2.9	129	130	17	16	No Change; Well bore seal okay
A11-08(Interim Temp)	12/13/2012 14:55	54.8	43.9	0	1.3	90	-1.8	-1.9	131	131	28	28	No Change; Well bore seal okay
A11-08(Interim Temp)	12/31/2012 16:00	54.2	42.9	0	2.9		-2.5	-2.5	129	131	21	20	No Change; Well bore seal okay
A11-08(Interim Temp)	1/10/2013 11:13	54	41.8	0	4.2		-2.6	-2.7	130	130	22	18	Opened valve 1/2 turn or less;
A11-08(Interim Temp)	1/30/2013 13:55	57.6	41.9	0	0.5	170	-2.1	-2.1	133	134	22	21	No Change; Well bore seal okay
A11-08(Interim Temp)	2/14/2013 16:08	53	43.1	0	3.9	130	-1.2	-1.2	134	134	16	15	No Change; Well bore seal okay
A11-08(Interim Temp)	2/25/2013 10:07	55	42.5	0	2.5	150	-0.1	-0.2	133	135	19	20	No Change; Well bore seal okay
A11-08(Interim Temp)	3/6/2013 11:52	52.5	42.4	0	5.1	120	-4.5	-4.5	133	134	26	27	No Change; Well bore seal okay
A11-08(Interim Temp)	3/21/2013 10:32	54	43.4	0	2.6	61	-3.5	-3.5	133	133	33	33	No Change
A11-08(Interim Temp)	4/15/2013 11:24	53.2	43.6	0	3.2	100	-3.6	-3.6	136	136	16	17	No Change; Well bore seal okay
A11-08(Interim Temp)	5/3/2013 13:50	57.3	42.8	0		190	-0.91	-0.92	138	138	25	25	No Change; Well bore seal okay
A11-08(Interim Temp)	5/28/2013 16:02	56.1	43.9	0	0	160	-1.34	-1.35	138	138	26	25	No Change; Well bore seal okay
A11-08(Interim Temp)	6/14/2013 9:14	54.4	43.8	0	1.8	180	-2.4	-2.38	136	137	25	25	No Change; Well bore seal okay
A11-08(Interim Temp)	6/28/2013 11:39	56.9	43.1	0	0	170	-1.87	-1.89	139	139	23	23	No Change; Well bore seal okay
A11-08(Interim Temp)	7/5/2013 9:13	54.3	45.1	0	0.6	130	-2.77	-2.77	136	136	23	23	No Change; Well bore seal okay
A11-08(Interim Temp)	7/26/2013 7:43	54.2	43.7	0	2.1	120	-2.91	-2.91	136	136	24	23	No Change; Well bore seal okay
A11-08(Interim Temp)	8/12/2013 14:30	54.1	43.1	0	2.8	190	-1.48	-1.49	139	139	21	21	No Change; Well bore seal okay
A11-08(Interim Temp)	8/29/2013 16:36	57	43	0	0	150	-1.96	-1.96	138	138	19	19	No Change; Well bore seal okay
A11-08(Interim Temp)	9/11/2013 12:43	54.9	43.3	0	1.8	180	-2.82	-2.82	138	138	20	20	No Change; Well bore seal okay
A11-08(Interim Temp)	9/24/2013 16:07	56.2	43.8	0	0	160	-1.52	-1.52	138	138	14	14	No Change; Well bore seal okay
A11-09(Interim Temp)	6/15/2012 14:28	57.4	41.3	0	1.3	190	-4.1	-4.1	136	135	36	36	No Change; Well bore seal okay
A11-09(Interim Temp)	6/28/2012 17:24	54.7	41.5	0	3.8	170	-4.5	-4.5	135	135	38	39	No Change; Well bore seal okay
A11-09(Interim Temp)	7/6/2012 11:44	57.4	40.2	0	2.4	130	-4.6	-4.6	135	135	38	37	No Change; Well bore seal okay
A11-09(Interim Temp)	7/20/2012 11:37	51.4	41.7	0	6.9	150	-4.5	-4.4	135	135	34	34	No Change; Well bore seal okay
A11-09(Interim Temp)	8/13/2012 14:02	54.7	40.7	0.3	4.3	180	-4	-3.9	136	136	22	23	No Change; Well bore seal okay
A11-09(Interim Temp)	8/28/2012 13:31	56.5	43.4	0	0.1	180	-3.9	-3.9	137	137	49	48	No Change; Well bore seal okay
A11-09(Interim Temp)	9/11/2012 11:13	57.2	41.9	0	0.9	130	-4.9	-5.2	138	136	33	37	Opened valve 1/2 turn or less;
A11-09(Interim Temp)	9/24/2012 11:58	56.7	43	0.1	0.2	160	-5.4	-5.6	135	135	40	42	Opened valve 1/2 turn or less;
A11-09(Interim Temp)	10/5/2012 13:11	57.5	42.4	0	0.1	150	-5.7	-5.7	133	134	46	46	No Change; Well bore seal okay
A11-09(Interim Temp)	10/30/2012 11:32	57.2	42.5	0.2	0.1	170	-6.2	-6.5	134	134	43	46	Opened valve 1/2 turn or less;
A11-09(Interim Temp)	11/13/2012 14:49	57.1	42.7	0	0.2	140	-5.4	-5.5	134	134	50	50	No Change; Well bore seal okay
A11-09(Interim Temp)	11/28/2012 16:14	55.7	44.2	0	0.1	110	-7.5	-7.5	134	134	44	44	No Change; Well bore seal okay
A11-09(Interim Temp)	12/13/2012 14:40	57.5	42.4	0	0.1		-6.6	-6.6	135	136	51	52	No Change; Well bore seal okay
A11-09(Interim Temp)	12/31/2012 16:02	57.7	42.2	0	0.1	110	-8	-8.1	136	137	52	52	No Change; Well bore seal okay
A11-09(Interim Temp)	1/10/2013 10:57	57.7	41	0	1.3	130	-8.3	-8.6	135	136	51	55	Opened valve 1/2 turn or less;
A11-09(Interim Temp)	1/30/2013 13:58	58.7	41.2	0	0.1	140	-7.5	-7.6	137	137	53	53	No Change; Well bore seal okay
A11-09(Interim Temp)	2/14/2013 16:12	56.4	42.1	0	1.5	140	-5.1	-5	137	137	42	43	No Change; Well bore seal okay
A11-09(Interim Temp)	2/25/2013 10:10	57.3	41.2	0	1.5	170	-2.4	-2.3	135	136	34	34	No Change
A11-09(Interim Temp)	3/6/2013 11:56	56.7	41.7	0	1.6	160	-5.8	-5.9	135	136	33	34	No Change; Well bore seal okay
A11-09(Interim Temp)	3/25/2013 12:07	56.4	43.6	0	0	140	-4.24	-4.24	138	138	33	33	No Change; Well bore seal okay

Forward Well Data for Selected Wells
July 2012 through September 2013

Name	Date Time	(% by vol)	Dioxide	(% by vol)	(% by vol)	(ppm)	Static	Static	Temp	Temp	Flow	(scfm)	Comments
A11-09(Interim Temp)	4/15/2013 12:45	57.8	42.2	0	0	150	-4.53	-4.53	137	137	32	31	No Change; Well bore seal okay
A11-09(Interim Temp)	5/3/2013 13:55	58.6	41.4	0	0	180	-1.57	-1.57	138	138	29	28	No Change; Well bore seal okay
A11-09(Interim Temp)	5/28/2013 16:07	57.5	42.5	0	0	170	-2.12	-2.11	138	138	27	27	No Change; Well bore seal okay
A11-09(Interim Temp)	6/14/2013 9:06	57.8	42.1	0	0.1	130	-3.21	-3.2	138	138	28	28	No Change; Well bore seal okay
A11-09(Interim Temp)	6/28/2013 11:42	58.6	41.4	0	0	150	-2.57	-2.55	139	139	26	25	No Change; Well bore seal okay
A11-09(Interim Temp)	7/5/2013 9:18	56.2	42.9	0	0.9	150	-3.42	-3.46	137	137	35	40	No Change; Well bore seal okay
A11-09(Interim Temp)	7/26/2013 7:52	58.1	41.9	0	0	160	-3.59	-3.59	137	137	25	25	No Change; Well bore seal okay
A11-09(Interim Temp)	8/12/2013 14:36	57.9	41.4	0	0.7	180	-2	-2	139	139	23	23	No Change; Well bore seal okay
A11-09(Interim Temp)	8/29/2013 16:40	58.9	41.1	0	0	170	-2.65	-2.65	139	139	21	21	No Change; Well bore seal okay
A11-09(Interim Temp)	9/11/2013 12:47	58.4	41.6	0	0	180	-3.64	-3.64	139	139	24	24	No Change; Well bore seal okay
A11-09(Interim Temp)	9/24/2013 16:11	58.4	41.6	0	0	190	-2.19	-2.19	138	138	23	23	No Change; Well bore seal okay
A11-10(Interim Temp)	6/15/2012 14:24	57.5	40.9	0	1.6	180	-3	-2.9	136	137	21	20	No Change; Well bore seal okay
A11-10(Interim Temp)	6/28/2012 17:27	53.2	42.7	0	4.1	180	-3.3	-3.4	136	136	21	21	No Change; Well bore seal okay
A11-10(Interim Temp)	7/6/2012 11:48	57.7	41.5	0	0.8	100	-3.4	-3.5	136	136	25	25	No Change; Well bore seal okay
A11-10(Interim Temp)	7/20/2012 11:41	51.9	41.5	0.1	6.5	120	-3.4	-3.3	135	135	7	8	No Change; Well bore seal okay
A11-10(Interim Temp)	8/13/2012 14:05	54	41.4	0.3	4.3	170	-2.9	-2.9	139	138			No Change; Well bore seal okay
A11-10(Interim Temp)	8/28/2012 13:36	57	42.6	0	0.4	170	-2.9	-2.8	137	138	41	41	No Change; Well bore seal okay
A11-10(Interim Temp)	9/11/2012 11:18	57.3	41.1	0	1.6	160	-3.5	-3.6	138	136	17	20	Opened valve 1/2 turn or less;
A11-10(Interim Temp)	9/24/2012 12:03	56.3	42.7	0.1	0.9	110	-3.6	-3.7	136	136	23	23	Opened valve 1/2 turn or less;
A11-10(Interim Temp)	10/5/2012 13:16	58.1	41.7	0	0.2	170	-3.8	-3.8	135	135	25	25	No Change; Well bore seal okay
A11-10(Interim Temp)	10/30/2012 11:36	56.8	42.9	0.2	0.1	160	-4.2	-4.2	135	134	21	21	No Change; Well bore seal okay
A11-10(Interim Temp)	11/13/2012 14:59	56	43.9	0	0.1	130	-2.7	-2.7	134	135	22	22	No Change; Well bore seal okay
A11-10(Interim Temp)	11/28/2012 16:19	56.1	43.8	0	0.1	120	-4.7	-4.7	134	134	23	22	No Change; Well bore seal okay
A11-10(Interim Temp)	12/13/2012 14:45	56.6	43.3	0	0.1	130	-3.5	-3.7	135	135	24	24	Opened valve 1/2 turn or less;
A11-10(Interim Temp)	12/31/2012 16:04	57.9	42	0	0.1		-5.3	-5.3	135	136	27	27	No Change; Well bore seal okay
A11-10(Interim Temp)	1/10/2013 11:03	57.7	41.2	0	1.1	120	-5.3	-5.4	135	136	25	27	Opened valve 1/2 turn or less;
A11-10(Interim Temp)	1/30/2013 14:02	58.5	41.3	0	0.2	160	-4.8	-4.8	137	138	26	26	No Change; Well bore seal okay
A11-10(Interim Temp)	2/13/2013 8:33	57.4	41.7	0.4	0.5		-4.5	-4.5	125	126	24	24	No Change; Well bore seal okay
A11-10(Interim Temp)	2/25/2013 10:15	56.8	40.9	0	2.3	150	-1.1	-1.1	136	137	19	18	No Change; Well bore seal okay
A11-10(Interim Temp)	3/6/2013 12:01	55.9	41.8	0	2.3	150	-4	-4.1	136	136	17	16	No Change; Well bore seal okay
A11-10(Interim Temp)	3/25/2013 12:04	56.6	43.4	0	0	150	-2.64	-2.63	137	136	21	21	No Change; Well bore seal okay
A11-10(Interim Temp)	4/15/2013 12:34	56.9	41.9	0	1.2	150	-2.97	-2.96	137	138	20	20	No Change; Well bore seal okay
A11-10(Interim Temp)	5/3/2013 13:59	58.2	41.8	0	0	180	-0.37	-0.36	138	138	18	18	No Change; Well bore seal okay
A11-10(Interim Temp)	5/28/2013 16:10	57.7	42.3	0	0	130	-0.93	-0.92	139	139	20	20	No Change; Well bore seal okay
A11-10(Interim Temp)	6/14/2013 9:09	56	42.3	0	1.7	160	-1.87	-1.86	138	138	13	14	No Change; Well bore seal okay
A11-10(Interim Temp)	6/28/2013 11:45	58.6	41.4	0	0	140	-1.43	-1.44	137	137	17	16	No Change; Well bore seal okay
A11-10(Interim Temp)	7/5/2013 9:23	55.5	43.9	0	0.6	170	-2.29	-2.29	138	138	16	16	No Change; Well bore seal okay
A11-10(Interim Temp)	7/26/2013 7:57	56.1	41.9	0	2	150	-2.5	-2.49	138	138	19	19	No Change; Well bore seal okay
A11-10(Interim Temp)	8/12/2013 14:40	56.3	41.2	0	2.5	190	-1.03	-1.02	138	137	16	16	No Change; Well bore seal okay
A11-10(Interim Temp)	8/29/2013 16:45	58.6	41.4	0	0	140	-1.55	-1.56	139	139	31	31	No Change; Well bore seal okay
A11-10(Interim Temp)	9/11/2013 12:51	58.1	41.9	0	0	190	-2.34	-2.34	137	137	20	21	No Change; Well bore seal okay
A11-10(Interim Temp)	9/24/2013 16:15	58.1	41.9	0	0	180	-0.86	-0.86	139	139			No Change; Well bore seal okay
A11-11(Interim Temp)	6/15/2012 15:35	56.7	42	0.1	1.2	100	-2.9	-2.9	133	133	5	5	No Change; Well bore seal okay
A11-11(Interim Temp)	6/28/2012 17:31	55.7	41.9	0	2.4	130	-3.8	-3.8	134	133	12	12	No Change; Well bore seal okay
A11-11(Interim Temp)	7/6/2012 11:51	58	41	0	1	80	-4.1	-4.1	133	133	19	19	No Change; Well bore seal okay
A11-11(Interim Temp)	7/20/2012 11:45	52.5	42.8	0	4.7	110	-4.1	-4.1	133	133			No Change; Well bore seal okay
A11-11(Interim Temp)	8/13/2012 14:09	54.2	42.7	0.2	2.9	150	-3.7	-3.7	136	136	9	10	No Change; Well bore seal okay
A11-11(Interim Temp)	8/28/2012 13:40	56.8	43.1	0	0.1	100	-9.4	-9.3	137	137	42	41	No Change; Well bore seal okay
A11-11(Interim Temp)	9/11/2012 11:22	57.1	40.6	0	2.3	120	-10.6	-11	138	138	20	20	Opened valve 1/2 turn or less;

Forward Well Data for Selected Wells
July 2012 through September 2013

Name	Date Time	(% by vol)	Dioxide	(% by vol)	(% by vol)	(ppm)	Static	Static	Temp	Temp	Flow	(scfm)	Comments
A11-11(Interim Temp)	9/24/2012 12:07	57.5	42.2	0.1	0.2	110	-11.7	-12.1	135	135	24	27	Opened valve 1/2 turn or less;
A11-11(Interim Temp)	10/5/2012 13:21	58.6	41.2	0	0.2	120	-12.9	-13.5	134	134	28	31	Opened valve 1/2 turn or less;
A11-11(Interim Temp)	10/30/2012 11:40	57.7	42	0.2	0.1	100	-14.6	-14.6	134	134	27	26	No Change; Well bore seal okay
A11-11(Interim Temp)	11/13/2012 15:04	57	42.8	0	0.2	80	-13.4	-13.4	133	134	23	22	No Change; Well bore seal okay
A11-11(Interim Temp)	11/28/2012 16:25	56.7	43.2	0	0.1	80	-15.4	-15.3	133	133	28	26	No Change; Well bore seal okay
A11-11(Interim Temp)	12/13/2012 14:37	57.3	42.2	0	0.5	100	-14.7	-15.3	134	134	33	35	Opened valve 1/2 turn or less;
A11-11(Interim Temp)	12/31/2012 16:07	58.4	41.5	0	0.1		-16.7	-16.8	135	134	31	32	No Change; Well bore seal okay
A11-11(Interim Temp)	1/10/2013 10:54	57.7	40.7	0	1.6	100	-17.2	-17.9	133	134	29	34	Opened valve 1/2 turn or less;
A11-11(Interim Temp)	1/30/2013 14:05	59.1	40.8	0	0.1	90	-16.2	-16.2	136	136	32	33	No Change; Well bore seal okay
A11-11(Interim Temp)	2/14/2013 16:16	57.2	41.8	0	1	100	-11	-11	134	135	24	24	No Change; Well bore seal okay
A11-11(Interim Temp)	2/25/2013 10:18	58.8	40.4	0	0.8	100	-7	-6.9	134	133	21	20	No Change; Well bore seal okay
A11-11(Interim Temp)	3/6/2013 12:05	57.9	41.3	0	0.8	90	-10.5	-10.4	133	134	20	18	No Change; Well bore seal okay
A11-11(Interim Temp)	3/21/2013 11:07	57.8	42.1	0	0.1	23	-9.6	-9.6	132	132	25	25	No Change; Well bore seal okay
A11-11(Interim Temp)	4/15/2013 12:39	58.4	41.6	0	0	90	-9.01	-9.01	135	135	20	20	No Change; Well bore seal okay
A11-11(Interim Temp)	5/3/2013 14:03	58.5	41.5	0	0	160	-4.83	-4.82	136	136	19	19	No Change; Well bore seal okay
A11-11(Interim Temp)	5/28/2013 16:14	57.9	42.1	0	0	110	-5.3	-5.28	136	136	17	17	No Change; Well bore seal okay
A11-11(Interim Temp)	6/14/2013 9:03	58	41.9	0	0.1	150	-6.71	-6.71	135	135	19	18	No Change; Well bore seal okay
A11-11(Interim Temp)	6/28/2013 11:47	59.1	40.9	0	0	160	-5	-5	137	137	17	16	No Change; Well bore seal okay
A11-11(Interim Temp)	7/5/2013 9:29	56.6	43.4	0	0	140	-6.21	-6.2	135	135	17	17	No Change; Well bore seal okay
A11-11(Interim Temp)	7/26/2013 8:01	58.4	41.6	0	0	130	-6.48	-6.44	134	134	19	19	No Change; Well bore seal okay
A11-11(Interim Temp)	8/12/2013 14:44	58.4	40.9	0	0.7	170	-4.17	-4.18	137	137	16	16	No Change; Well bore seal okay
A11-11(Interim Temp)	8/29/2013 16:48	59.3	40.7	0	0	150	-5.12	-5.13	137	137	13	12	No Change; Well bore seal okay
A11-11(Interim Temp)	9/11/2013 12:55	58.8	41.2	0	0	150	-6.48	-6.48	137	137			No Change; Well bore seal okay
A11-11(Interim Temp)	9/24/2013 16:24	58.3	41.7	0	0	140	-5.3	-5.3	135	135	27	27	No Change; Well bore seal okay
A12-02	9/11/2012 12:44	57.5	42.3	0	0.2		-1.1	-1.3	129	129			Opened valve 1/2 turn or less;
A12-02	9/25/2012 12:25	56.3	43.6	0	0.1		-1.2	-1.1	129	127	11	9	No Change; Well bore seal okay
A12-02	10/8/2012 11:38	54.4	45.4	0	0.2		-2.5	-2.8	128	129	15	18	Opened valve 1/2 turn or less;
A12-02	10/24/2012 15:36	56.3	43.4	0.1	0.2		-3	-3.2	129	128	17	21	No Change; Well bore seal okay
A12-02	11/14/2012 11:05	56	43.9	0	0.1	90	-3.5	-3.4	129	129	22	21	
A12-02	11/14/2012 11:06	56.1	43.8	0	0.1	90	-3.9	-3.9	129	129	26	26	Opened valve 1/2 turn or less;
A12-02	11/29/2012 14:54	56	43.9	0	0.1		-3.8	-3.8	129	129	25	26	No Change; Well bore seal okay
A12-02	12/13/2012 15:33	55.9	44	0	0.1		-4.1	-4.1	129	129	24	24	No Change; Well bore seal okay
A12-02	12/31/2012 16:34	56.4	43.5	0	0.1		-4.9	-4.9	128	127	27	27	No Change; Well bore seal okay
A12-02	1/30/2013 10:37	58.6	41.3	0	0.1	80	-5.9	-6.3	135	136	27	32	No Change; Well bore seal okay
A12-02	2/14/2013 15:38	55.7	43.5	0	0.8	80	-3.9	-3.9	132	132	25	24	
A12-02	2/14/2013 15:40	56	43.7	0	0.3		-4	-4	131	131	24	24	No Change; Second Reading;
A12-02	2/26/2013 15:25	56.8	43.1	0	0.1	90	-2.9	-2.8	135	135	21	20	No Change; Well bore seal okay
A12-02	3/6/2013 14:25	56.1	43.8	0	0.1	70	-3.6	-3	135	135	21	13	Closed valve 1/2 turn or less; Well
A12-02	3/18/2013 10:24	55.4	44.6	0	0	80	-1.99	-1.98	133	133	16	15	
A12-02	3/18/2013 10:26	55.4	44.6	0	0	80	-1.35	-1.35	131	131			Closed valve 1/2 turn or less;
A12-02	3/29/2013 15:24	55.9	44.1	0	0	80	-0.15	-0.15	136	136	5	38	No Change; Well bore seal okay
A12-02	4/8/2013 15:56	56.7	43.3	0	0		-1.64	-1.68	129	129			No Change; Well bore seal okay
A12-02	4/26/2013 12:49	56.9	43.1	0	0		-2.39	-2.4	126	127	16	16	No Change; Well bore seal okay
A12-02	5/3/2013 10:26	56.5	43.5	0	0		-1.59	-1.6	129	130	24	24	No Change; Well bore seal okay
A12-02	5/29/2013 7:42	56.7	43.3	0	0	80	-2.01	-1.99	134	134	17	16	
A12-02	5/29/2013 7:44	56.8	43.3	0			-1.37	-1.36	132	133	14	13	Closed valve 1/2 turn or less;
A12-02	6/6/2013 11:11	56.6	43.3	0	0.1	140	-0.49	-0.46	131	131	28	27	Closed valve 1/2 turn or less; Well
A12-02	6/6/2013 11:13	56.6	43.3	0	0.1	140	-0.35	-0.33	130	132	14	26	Closed valve 1/2 turn or less;
A12-02	6/14/2013 10:04	55.9	44.1	0	0		-1.43	-1.42	128	132	14	13	Adjusted vacuum; inspected well

**Forward Well Data for Selected Wells
July 2012 through September 2013**

Name	Date Time	(% by vol)	Dioxide	(% by vol)	(% by vol)	(ppm)	Static	Static	Temp	Temp	Flow	(scfm)	Comments
A12-02	7/8/2013 11:18	56.9	43	0	0.1	90	-2	-2.01	136	136	10	9	Adjusted vacuum; inspected well
A12-02	7/8/2013 11:20	55	45	0	0	90	-1.5	-1.5	135	135			Closed valve 1/2 turn or less;
A12-02	7/26/2013 14:59	56.3	43.6	0	0.1	80	-0.26	-0.25	137	137	38	38	No Change; Well bore seal okay
A12-02	8/13/2013 11:23	64.6	35.4	0	0	100	-1.57	-1.57	138	138	12	12	Adjusted vacuum; inspected well
A12-02	8/29/2013 12:46	56.6	43.4	0	0	90	-1.8	-1.8	138	138			Adjusted vacuum; inspected well
A12-02	9/13/2013 15:20	57	43	0	0	100	-0.8	-0.8	139	139	17	17	No Change; Well bore seal okay
A12-02	9/24/2013 15:46	56.7	43.3	0	0	100	-1.02	-1.02	137	137	21	21	
A12-02	9/24/2013 15:48	56.3	43.7	0	0	100	-0.36	-0.35	136	136	7	7	Closed valve 1/2 turn or less;
A12-03	3/6/2013 14:29	52.9	47	0	0.1		-1.6	-1.5	128	128	34	34	No Change; Well bore seal okay
A12-03	3/18/2013 10:30	53	47	0	0		-1.47	-1.45	129	128			No Change; Well bore seal okay
A12-03	4/8/2013 15:59	54.2	45.8	0	0		-0.47	-0.48	126	126	12	12	No Change; Well bore seal okay
A12-03	4/26/2013 12:53	55.2	44.4	0	0.4		-1.29	-1.26	129	129	11	11	No Change; Well bore seal okay
A12-03	5/3/2013 10:29	54.8	45.2	0	0		-0.15	-0.15	130	130	18	18	No Change; Well bore seal okay
A12-03	5/29/2013 7:48	55.2	44.8	0	0		-0.87	-0.86	126	126	15	14	No Change; Well bore seal okay
A12-03	6/14/2013 10:06	54.6	45.3	0.1	0		-0.58	-0.58	129	129	27	27	No Change; Well bore seal okay
A12-03	6/19/2013 12:03	54.8	45.1	0.1	0	90	-1.71	-1.68	130	130	13	13	No Change; Well bore seal okay
A12-03	7/8/2013 11:25	53.9	44.1	0	2	80	-1.19	-1.18	130	130	29	29	
A12-03	7/8/2013 11:26	54.3	45.7	0	0	80	-1.06	-1.06	130	130	23	23	Closed valve 1/2 turn or less;
A12-03	8/29/2013 12:51	55.5	44.5	0	0	100	-1.76	-1.76	136	136	26	26	Adjusted vacuum; inspected well
A12-03	9/13/2013 15:24	55.8	44.2	0	0	90	-0.73	-0.73	137	138	36	35	No Change; Well bore seal okay
A12-03	9/24/2013 15:52	55.3	44.7	0	0	90	-0.96	-0.97	136	136	13	13	
A12-03	9/24/2013 15:53	55.3	44.7	0	0	90	-0.27	-0.27	133	133			Closed valve 1/2 turn or less;
A12-04	6/14/2013 10:08	56.2	43.6	0.1	0.1		-0.85	-0.86	125	126	30	30	No Change; Well bore seal okay
A12-04	7/8/2013 11:30	49.6	42	0	8.4		-2.42	-2.26	128	128	16	13	Closed valve 1/2 turn or less; Well
A12-04	7/26/2013 15:08	54	43.3	0	2.7		-0.53	-0.52	129	129	14	14	No Change; Well bore seal okay
A12-04	8/13/2013 11:33	62	34.8	0	3.2		-0.86	-0.87	129	129	14	15	No Change; Well bore seal okay
A12-04	8/29/2013 12:55	54.9	42.3	0	2.8		-1.39	-1.39	127	127	26	26	No Change; Well bore seal okay
A12-04	9/13/2013 15:28	57.2	42.8	0	0	100	-0.56	-0.56	131	131	16	16	
A12-04	9/13/2013 15:29	57.1	42.9	0	0	100	-0.63	-0.62	131	131	20	21	No Change; Second Reading; Well
A12-04	9/24/2013 15:57	57.1	42.9	0	0		-0.74	-0.74	129	129	9	9	No Change; Well bore seal okay
A12-05	2/14/2013 16:01	56.1	42.3	0	1.6		-1.9	-1.9	125	126	31	30	No Change; Well bore seal okay
A12-05	3/18/2013 10:52	56.4	43.6	0	0		-2.13	-2.11	125	126	26	26	No Change; Well bore seal okay
A12-05	4/8/2013 16:06	56.9	43.1	0	0		-1.12	-1.1	125	125	13	13	No Change; Well bore seal okay
A12-05	4/27/2013 11:22	56.9	43.1	0	0		-1.72	-1.73	126	126	35	36	No Change; Well bore seal okay
A12-05	5/3/2013 10:36	57.2	42.8	0	0		-0.32	-0.32	126	126	16	16	No Change; Well bore seal okay
A12-05	5/29/2013 7:53	57.4	42.6	0	0		-1.33	-1.33	125	125	35	35	No Change; Well bore seal okay
A12-05	6/14/2013 10:09	57.1	42.8	0	0.1		-1.03	-1.02	126	126	33	33	No Change; Well bore seal okay
A12-05	7/8/2013 11:33	56.3	43.7	0	0		-1.62	-1.61	126	127	31	31	No Change; Well bore seal okay
A12-05	7/26/2013 15:23	56.8	43.2	0	0		-0.12	-0.13	128	128	28	13	No Change; Well bore seal okay
A12-05	8/13/2013 11:36	65.7	34.3	0	0		-0.63	-0.63	127	128	15	15	No Change; Well bore seal okay
A12-05	8/29/2013 12:57	58.1	41.9	0	0		-1.23	-1.22	127	127	15	15	No Change; Well bore seal okay
A12-05	9/13/2013 15:32	58.2	41.8	0	0		-0.12	-0.13	130	130	10	10	No Change; Well bore seal okay
A12-05	9/24/2013 15:59	58	42	0	0		-0.78	-0.78	129	129	17	17	No Change; Well bore seal okay
A12-13S	9/11/2012 12:58	59.7	40.1	0	0.2		-2.8	-3.1	125	125	27	29	Opened valve 1/2 turn or less;
A12-13S	7/30/2013 12:05	58.6	41.4	0	0		-2.06	-2.06	125	125	17	17	No Change; Well bore seal okay
A12-13S	8/13/2013 12:19	66.6	33.4	0	0		-1.24	-1.24	125	125	20	20	No Change; Well bore seal okay
A12-13S	8/29/2013 14:02	59.8	40.2	0	0		-1.82	-1.82	125	125	20	20	No Change; Well bore seal okay
A12-13S	9/13/2013 16:03	59.7	40.3	0	0		-0.83	-0.84	126	126	23	23	No Change; Well bore seal okay
A12-14	8/22/2012 13:18	55.1	41.5	0.1	3.3	160	-0.9	-0.9	130	133			

**Forward Well Data for Selected Wells
July 2012 through September 2013**

Name	Date Time	(% by vol)	Dioxide	(% by vol)	(% by vol)	(ppm)	Static	Static	Temp	Temp	Flow	(scfm)	Comments
A12-14	8/22/2012 13:20	55.5	41.2	0.1	3.2		-0.9	-1	127	126	7		No Change; Second Reading; Well
A12-14	9/5/2012 14:52	56.2	43.3	0	0.5		-1.1	-1.5	129	129		23	Opened valve 1/2 turn or less;
A12-14	9/7/2012 9:21	57.5	41.2	0	1.3		-2.9	-2.9	140	140	15	14	
A12-14	9/7/2012 9:25	57.4	42.2	0	0.4	85	-1.8	-1.8	135	135			Closed valve 1/2 to 1 turn; Second
A12-14	9/25/2012 12:34	56.3	43.6	0	0.1		-0.5	-0.5	128	128	7	7	No Change; Well bore seal okay
A12-14	10/8/2012 11:52	56	43.8	0	0.2		-0.9	-0.9	126	126	8	7	No Change; Well bore seal okay
A12-14	10/29/2012 11:44	57.5	42	0.3	0.2		-0.8	-0.9	125	126			Opened valve 1/2 turn or less;
A12-14	11/14/2012 11:22	56.8	43.1	0	0.1		-0.6	-0.7	127	128	6	8	No Change; Well bore seal okay
A12-14	11/29/2012 15:06	57.7	42.2	0	0.1		-0.5	-0.4	126	127	11	11	No Change; Well bore seal okay
A12-14	12/13/2012 14:43	56.4	43.5	0	0.1		-0.5	-0.6	127	129	16	20	Opened valve 1/2 turn or less;
A12-14	12/31/2012 17:03	57.6	42.3	0	0.1		-1.5	-1.5	127	128	19	18	No Change; Well bore seal okay
A12-14	1/10/2013 11:01	58.5	41.4	0	0.1		-1.6	-1.7	126	127			Opened valve 1/2 turn or less;
A12-14	2/26/2013 15:39	57.2	42.7	0	0.1		-0.2	-0.3	129	128			No Change; Well bore seal okay
A12-14	3/6/2013 15:02	57.1	42.8	0	0.1		-1.3	-1.3	128	127			No Change; Well bore seal okay
A12-14	3/18/2013 10:56	56.3	43.7	0	0	110	-1.2	-1.16	133	133	16	15	
A12-14	3/18/2013 10:59	56.2	43.8	0	0	110	-1	-0.95	129	129			Closed valve 1/2 turn or less;
A12-14	3/29/2013 15:19	56.3	43.7	0	0		-0.24	-0.25	129	129	36	38	No Change; Well bore seal okay
A12-14	4/8/2013 16:11	56.9	43.1	0	0		-0.77	-0.79	128	127	29	30	No Change; Well bore seal okay
A12-14	4/27/2013 11:26	57	43	0	0		-1.36	-1.36	129	129	37	36	No Change; Well bore seal okay
A12-14	5/3/2013 10:40	57.5	42.5	0	0		-0.29	-0.3	129	129	21	28	No Change; Well bore seal okay
A12-14	5/29/2013 7:57	57.5	42.5	0	0		-0.96	-0.95	129	129	34	35	No Change; Well bore seal okay
A12-14	6/14/2013 10:12	56.9	43.1	0	0		-0.75	-0.72	129	127	37	36	No Change; Well bore seal okay
A12-14	7/30/2013 12:08	57.3	41.3	0	1.4	80	-1.17	-1.17	133	133	9	8	Adjusted vacuum; inspected well
A12-14	8/13/2013 12:22	65.7	34.3	0	0	100	-0.56	-0.6	135	135	13	13	Adjusted vacuum; inspected well
A12-14	8/29/2013 14:05	57.5	41.3	0	1.2	90	-0.92	-0.92	135	135	34	34	Adjusted vacuum; inspected well
A12-14	9/13/2013 16:05	58.6	41.4	0	0	100	-0.27	-0.27	132	132	27	27	No Change; Well bore seal okay
A12-14	9/24/2013 16:19	57.8	42.2	0	0	80	-0.26	-0.26	136	136	13	13	
A12-14	9/24/2013 16:20	57.6	42.4	0	0	80	-0.14	-0.14	136	136	8	9	Closed valve 1/2 turn or less;
A12-16	8/22/2012 15:28	57.5	42.1	0.2	0.2		1.1	1	128	127			
A12-16	8/22/2012 15:30	56.6	43	0.2	0.2		-0.8	-0.9	129	129			Opened valve 1/2 turn or less;
A12-16	9/11/2012 14:43	59.7	39.5	0.4	0.4		-3.4	-3.8	128	128	21	23	Opened valve 1/2 turn or less
A12-16	9/25/2012 13:30	58.6	41.3	0	0.1		-5	-5.1	129	129	20	20	No Change; Well bore seal okay
A12-16	10/8/2012 13:52	58.4	41	0.5	0.1		-5.2	-5.2	126	126	21	21	No Change; Well bore seal okay
A12-16	10/29/2012 14:15	59.2	40.1	0.5	0.2		-4.7	-4.7	127	127	20	20	No Change; Well bore seal okay
A12-16	11/14/2012 12:22	58.7	40.4	0.2	0.7		-4.9	-4.9	127	128	20	20	No Change; Well bore seal okay
A12-16	11/29/2012 15:51	59.1	40.7	0	0.2		-5.6	-5.6	126	127			No Change; Well bore seal okay
A12-16	12/28/2012 12:47	58.3	40.2	0	1.5		-5.8	-5.8	125	126	22	23	No Change; Well bore seal okay
A12-16	1/14/2013 16:06	57.9	41.9	0.1	0.1		-24.6	-24.5	128	128	48	48	No Change; Well bore seal okay
A12-16	1/30/2013 11:39	57.2	38.8	0.1	3.9	70	-20.2	-20.1	130	130	41	42	No Change; Well bore seal okay
A12-16	2/13/2013 12:30	54.9	39.6	0.4	5.1	70	-14.9	-14.9	130	131	32	30	
A12-16	2/13/2013 12:31	55.2	39.9	0.4	4.5		-14.9	-15	131	131	34	34	No Change; Second Reading; Well
A12-16	2/21/2013 9:06	57.8	39.6	0.2	2.4		-14.9	-14.9	129	129	28	26	No Change; Well bore seal okay
A12-16	6/14/2013 10:38	59.5	40.5	0	0		-4.76	-4.73	126	126	16	17	No Change; Well bore seal okay
A12-16	6/27/2013 12:34	59.6	40.4	0	0		-3.35	-3.33	127	127	15	15	No Change; Well bore seal okay
A12-16	7/8/2013 11:04	59	41	0	0		-5.81	-5.82	127	127	20	29	No Change; Well bore seal okay
A12-16	7/30/2013 12:13	60.3	39.7	0	0		-5.4	-5.42	127	127	3	3	No Change; Well bore seal okay
AO65RS (IWP)	8/2/2012 13:56	54.8	41.3	0.3	3.6		-1.7	-1.9	125	125	25	27	Opened valve 1/2 turn or less;
AO65RS (IWP)	8/22/2012 16:43	54.1	45.8	0	0.1		-2	-2.1	125	125	33	31	No Change; Well bore seal okay
AO65RS (IWP)	9/10/2012 16:23	54.3	44.2	0	1.5		-2.3	-2.3	128	128	31	31	No Change; Well bore seal okay

**Forward Well Data for Selected Wells
July 2012 through September 2013**

Name	Date Time	(% by vol)	Dioxide	(% by vol)	(% by vol)	(ppm)	Static	Static	Temp	Temp	Flow	(scfm)	Comments
AO65RS (IWP)	7/24/2013 11:54	56.9	43.1	0	0		-0.63	-0.62	125	125	26	26	No Change; Well bore seal okay
AO65RS (IWP)	9/10/2013 15:32	56.7	43.3	0	0		-1.03	-1.03	125	125	18	19	No Change; Well bore seal okay
F12-01	3/12/2013 12:54	57.7	42.2	0	0.1		-0.7	-0.7	125	126	5	4	No Change; Well bore seal okay
F12-01	4/2/2013 10:57	56.9	43.1	0	0		-0.54	-0.54	126	125	32	33	No Change; Well bore seal okay
F12-01	5/13/2013 15:08	58.1	41.9	0	0		-0.26	-0.26	128	128	8	8	No Change; Well bore seal okay
F12-01	5/29/2013 14:08	56.4	43.6	0	0		-0.52	-0.53	126	126	31	30	No Change; Well bore seal okay
F12-01	6/12/2013 15:33	59	40.2	0	0.8		-0.16	-0.13	127	128	33	33	No Change; Well bore seal okay
F12-01	6/28/2013 12:25	58.6	40.8	0	0.6		-0.17	-0.14	127	127	19	18	No Change; Well bore seal okay
F12-01	7/11/2013 11:19	58.7	41.3	0	0		-0.3	-0.3	126	126	30	30	No Change; Well bore seal okay
F12-01	7/19/2013 12:08	58.1	41.9	0	0		-0.18	-0.18	126	126	15	14	No Change; Well bore seal okay
F12-01	8/8/2013 14:35	58	42	0	0		-0.11	-0.21	127	128	12	13	No Change; Well bore seal okay
F12-01	8/21/2013 11:43	57.1	42.9	0	0		-1.3	-1.3	128	129	17	18	No Change; Well bore seal okay
F12-01	9/13/2013 18:45	58.6	41.4	0	0		-1.13	-1.13	129	129	6	7	No Change; Well bore seal okay
F12-01	9/19/2013 14:18	58	42	0	0		-1.11	-1.11	129	129	37	36	No Change; Well bore seal okay
F12-02	8/22/2012 11:43	58.3	41.1	0	0.6		-0.2	-0.3	126	126	8	8	Opened valve 1/2 turn or less;
F12-02	9/11/2012 15:53	58	41.4	0.5	0.1		-0.2	-0.4	129	129	11	15	Opened valve 1/2 turn or less;
F12-02	9/24/2012 14:18	56.4	41.1	0.4	2.1		-0.4	-0.5	126	127	16	17	Opened valve 1/2 turn or less;
F12-02	10/4/2012 14:29	57.3	40.7	0	2		-0.7	-0.8	126	126	16	18	Opened valve 1/2 turn or less;
F12-02	10/24/2012 13:43	50	38.4	0	11.6		-1	-1	125	125	19	18	No Change; Well bore seal okay
F12-02	11/26/2012 13:21	52.4	38.6	0	9		-0.8	-0.8	126	126	35	34	No Change; Well bore seal okay
F12-02	12/13/2012 11:51	54	39.4	0	6.6		-0.7	-0.7	125	125			No Change; Well bore seal okay
F12-02	12/31/2012 13:51	53	39.1	0.4	7.5		-0.8	-0.9	127	127			No Change; Well bore seal okay
F12-02	1/9/2013 10:04	52.5	38.6	0	8.9		-0.9	-1	126	126			Opened valve 1/2 turn or less;
F12-02	1/29/2013 15:27	52.6	38.4	0.5	8.5		-1.1	-1.1	126	126			No Change; Well bore seal okay
F12-02	3/12/2013 12:18	55.6	40.6	0.2	3.6		-0.5	-0.4	126	127	13	12	No Change; Well bore seal okay
F12-02	4/2/2013 10:00	55.4	40.7	0	3.9		-0.4	-0.4	126	126			No Change; Well bore seal okay
F12-02	5/13/2013 14:13	59.3	40.6	0	0.1		-0.12	-0.12	128	127		29	No Change; Well bore seal okay
F12-02	5/29/2013 13:38	53.6	42.3	0.2	3.9		-0.16	-0.14	129	129	16	16	No Change; Well bore seal okay
F12-02	6/12/2013 14:58	55.8	41.3	0	2.9		-0.47	-0.49	129	129	26	25	No Change; Well bore seal okay
F12-02	6/28/2013 12:02	57.4	40.8	0	1.8		-0.26	-0.26	125	125	18	30	No Change; Well bore seal okay
F12-02	7/11/2013 10:54	55.5	40.8	0	3.7		-0.6	-0.59	127	127	39	39	No Change; Well bore seal okay
F12-02	7/19/2013 11:45	55.9	41.8	0	2.3		-0.35	-0.35	126	126	15	15	No Change; Well bore seal okay
F12-02	8/8/2013 13:46	57.1	42.4	0	0.5		-0.23	-0.23	129	129	13	13	No Change; Well bore seal okay
F12-02	8/21/2013 11:16	57.1	42.5	0	0.4		-0.56	-0.56	127	127	17	17	No Change; Well bore seal okay
F12-02	9/13/2013 18:05	59.2	40.8	0	0		-0.22	-0.22	130	130	34	34	No Change; Well bore seal okay
F12-02	9/19/2013 13:59	55.2	41.6	0	3.2		-0.1	-0.1	129	130	16	15	No Change; Well bore seal okay
F12-03	9/11/2012 15:56	58.9	40.9	0.1	0.1		-0.4	-0.5	127	127	20	23	Opened valve 1/2 turn or less;
F12-06	9/11/2012 16:02	63.1	36.8	0	0.1		-0.6	-0.8	128	128	20	23	Opened valve 1/2 turn or less;
F12-06	12/31/2012 13:59	54.6	37.5	0.1	7.8		-2.3	-2.4	125	125	44	45	No Change; Well bore seal okay
F12-06	4/2/2013 10:20	57.2	38.5	0	4.3		-1.18	-1.17	125	125	28	28	No Change; Well bore seal okay
F12-06	5/13/2013 14:24	61.8	38.2	0	0		-0.56	-0.55	126	127	24	25	No Change; Well bore seal okay
F12-06	5/29/2013 13:46	55	37.9	0	7.1		-0.88	-0.88	125	125	23	23	No Change; Well bore seal okay
F12-06	6/12/2013 15:06	61.4	38.5	0	0.1		-0.76	-0.8	126	127	18	21	Opened valve 1/2 turn or less;
F12-06	6/28/2013 12:10	60.1	36.3	0	3.6		-0.82	-0.83	126	126	30	30	No Change; Well bore seal okay
F12-06	7/11/2013 11:02	59.7	37.9	0	2.4		-1.26	-1.24	125	125	24	25	No Change; Well bore seal okay
F12-06	7/19/2013 11:54	60.2	38.5	0	1.3		-1.01	-1.01	126	126	27	27	No Change; Well bore seal okay
F12-06	8/8/2013 13:54	60.6	39.4	0	0		-0.69	-0.7	126	126	24	24	No Change; Well bore seal okay
F12-06	8/21/2013 11:25	60.2	39.3	0	0.5		-1.07	-1.06	125	125	28	27	No Change; Well bore seal okay
F12-06	9/13/2013 18:11	62.1	37.9	0	0		-0.98	-0.97	126	126	23	23	No Change; Well bore seal okay